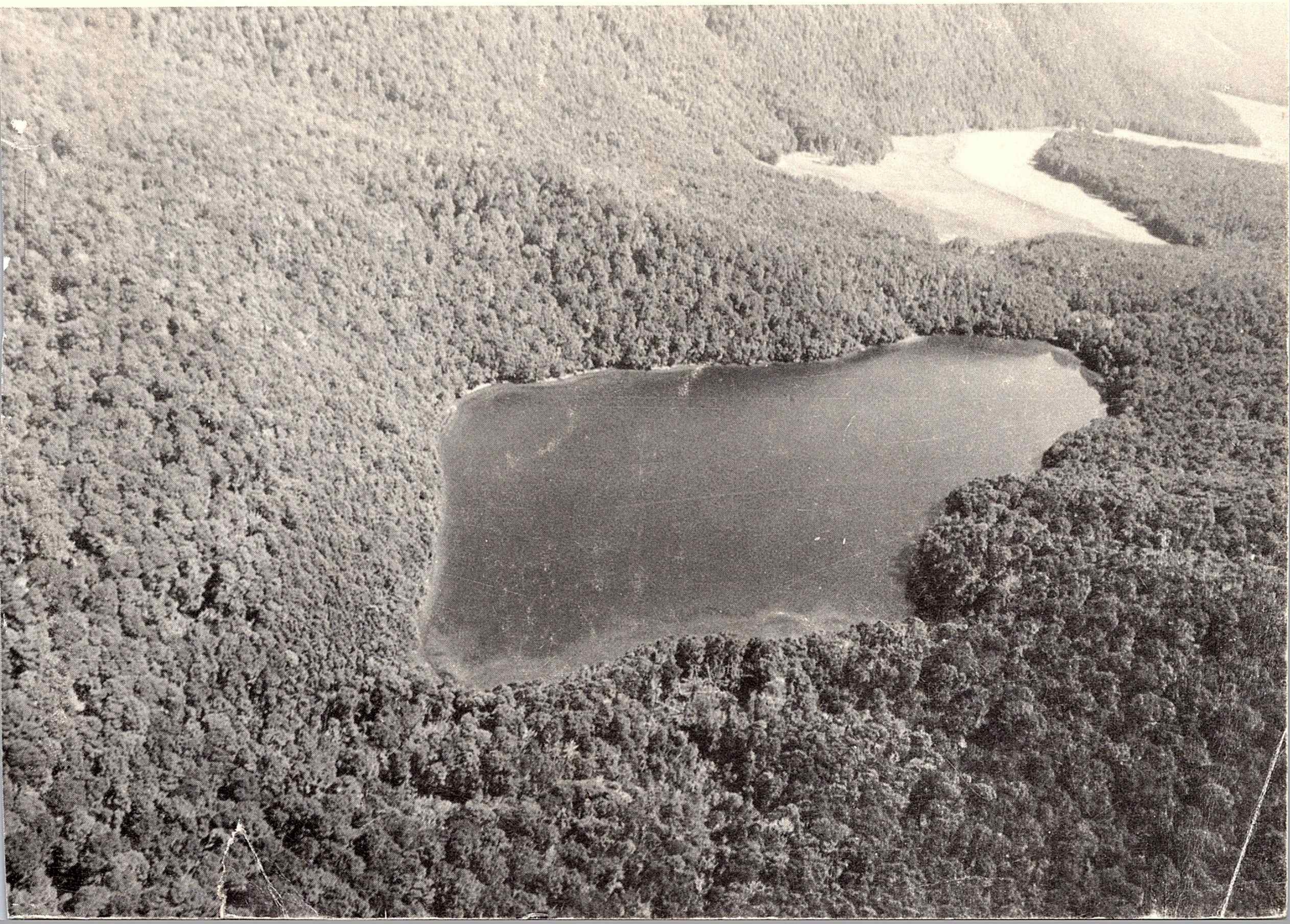
NORTH CANTERBURY ACCLIMATISATION SOCIETY

ANNUAL REPORT 1987



$8

A HUNTER'S CODE OF ETHICS

1. I will consider myself an invited guest of the landowner, seeking his permission and so conducting myself that I may be welcome in the future.
2. I will obey the rules of safe gun handling and will courteously but firmly insist that others who hunt with me do the same.
3. I will obey the laws and regulations, and will insist that my companions do likewise.
4. I will do my best to acquire those marksmanship and hunting skills, which assure clean, sportsmanlike kills.
5. I will support conservation efforts which can assure good hunting for future generations of New Zealanders.
6. I will pass along to young hunters the attitudes and skills essential to a true outdoors sportsman.

FRONT COVER: Lake Marion; January, 1987, looking northward to the Kiwi flats in the right background, with the Kiwi Saddle (2220 ft) separating the lake; the slopes of Niggerhead (4564 ft) rising on the left, midground; outlet Marion stream, to Lake Sumner, at lower left, foreground. Lake Marion is a faunistic Reserve, as per the Fisheries Act 1983, hence no salmonids, only native fauna and flora; about 12 hectares. (F/O R. Novis).

Printed by Larcombe Print, 95 Fitzgerald Avenue

THE NORTH CANTERBURY ACCLIMATISATION SOCIETY

NOTICE IS HEREBY GIVEN that the ANNUAL GENERAL MEETING of the above Society will be held on WEDNESDAY, 25th NOVEMBER, 1987; at 7.30 p.m., in the CENTRE GALLERY, ARTS CENTRE OF CHRISTCHURCH TRUST, 2 Worcester Street, Christchurch 1.

BUSINESS

1. To confirm the Minutes of the Annual General Meeting held on the 26th November, 1986, as circulated in the 1987 Annual Report.
2. To confirm the Minutes of the Special Meeting held on the 27th May, 1987, as circulated in the Annual Report.
3. To receive the Annual Report and Balance Sheet.
4. To declare the election of FOUR unopposed Councillors and elect ONE Councillor for the sub-district of Christchurch - Lyttelton - Riccarton - Waimairi - Heathcote, as per Society Rule 10.
5. To introduce candidates for the FIVE vacant seats on the Council.
6. To elect Auditors for the ensuing year, and fix their remuneration.
7. To transact any General Business.

By Order of Council,

B F. WEBB,

Secretary.

Please present your Annual Report or membership slip at the door to gain admittance to the Annual General Meeting.

OFFICERS OF THE NORTH CANTERBURY ACCLIMATISATION SOCIETY

1986-87

PRESIDENT

Mr R. F. Knowles

VICE-PRESIDENTS

Professor W. C. Clark and Mr M. E. Snowdon

COUNCIL

Armitage, P. L.
Barnes, P. Y.
Bradley, J. N.
Butler, R. T. E.
Cox, A. T.
Emms, M. P.
Fitzgerald, K. P.
Hannah, W. E.
Jenkins, P. W.
Knowles, R. F.
Matravers, A. B.
Matravers, G. H.
Mugford, J. G.
Pierson, T. A.
Potts, D. J.
Robson, M. T.
Ross, A. J.
Smith, J. R.
Snowdon, M. E.
Stickings, D. T.

SUPERNUMERARY MEMBERS

Mr W. J. Thompson and Prof. W. C. Clark

AUDITOR

Arthur Young — Chartered Accountants

SECRETARY

Mr B. F. Webb

EXECUTIVE COMMITTEE

Mr R. F. Knowles (President), Prof. W. C. Clark, Messrs W. E. Hannah, D. J. Potts, M. E. Snowdon.

FISH MANAGEMENT COMMITTEE

Messrs P. L. Armitage, P. Y. Barnes, J. N. Bradley, R. T. E. Butler, Prof. W. C. Clark, Messrs A. T. Cox, M. P. Emms, K. P. Fitzgerald, W. E. Hannah, P. W. Jenkins, R. F. Knowles, A. B. Matravers, G. H. Matravers, J. G. Mugford, T. A. Pierson, D. J. Potts, M. T. Robson, A. J. Ross, J. R. Smith, M. E. Snowdon (Chairman), D. T. Stickings, W. J. Thompson.

GAME MANAGEMENT COMMITTEE

Messrs P. L. Armitage, P. Y. Barnes, J. N. Bradley, R. T. E. Butler, Prof. W. C. Clark, Messrs A. T. Cox, M. P. Emms, K. P. Fitzgerald, W. E. Hannah, P. W. Jenkins, R. F. Knowles, A. B. Matravers, G. H. Matravers, J. G. Mugford, T. A. Pierson, D. J. Potts (Chairman), M. T. Robson, A. J. Ross, J. R. Smith, M. E. Snowdon, D. T. Stickings, W. J. Thompson.

WATER RESOURCE COMMITTEE

Prof. W. C. Clark (Convenor), Messrs P. Y. Barnes, J. N. Bradley, R. T. E. Butler, R. F. Knowles, J. G. Mugford, M. E. Snowdon.

HONORARY TREASURER

Mr W. E. Hannah

SOLICITOR

Lane, Neave, Ronaldson — Barristers and Solicitors

LIST OF LIFE MEMBERS

Messrs J. E. Foote, W. J. McKillop, G. Mugford, G. W. Thompson

LIST OF PRESIDENTS OF SOCIETY, 1864 - 1987

Name	**Term of Office**	**Name**	**Term of Office**
Weld, F. A. (M.H.R.)	1864-66	Smith, H. H.	1927-part
Wilkin, R. (M.H.R.)	1867	Lawrence, C. H.	1927-29
Bowen, C. C.	1868	Robertson, G. T.	1929
Peacock, J. T.	1869-72	Lawrence, C. H.	1930-31
Blakiston, C. R.	1873	Shand, L. A.	1932
Peacock, Hon. J. T.	1874-77	Steans, F.	1933-34
Wilson, Sir J. (K.C.I., C.B.)	1878-81	Champion, C. F.	1935
Peacock, Hon. J. T.	1882	Pomfret-Dodd, G. L.	1936-37
Frankish, Dr J. D.	1883	Dickson, Dr D. McK.	1938-43
Peacock, Hon. J. T.	1884-90	Stonyer, C. H.	1943-46
Spackman, W. H.	1891	Mackenzie, J. M.	1947-48
Carrick, A.	1892	MacGibbon, W. J.	1949-57
Peacock, Hon. J. T.	1893	Dickson, Dr D. McK.	1958-61
Carrick, A.	1894-99	Gorton, F. J.	1962-69
Scott, Arch	1899-00	Voyce, N. E.	1970-73
Fisher, J. B.	1900-04	Mugford, G.	1974
Moorhouse, Dr B. M.	1904-12	Williams, B. O.	1975-77
Anderson, Dr C. M.	1913-23	McKillop, W. J.	1978-85
Stead, E. F.	1924-27	Knowles, R. F.	1986

STAFF MEMBERS

Field Officers: Messrs D. R. Maindonald, R. T. Novis, H. L. Piper, B. J Ross; Mrs L. K. Sutton (Office Secretary)

COMPLIMENTARY LICENCES

FISH LICENCES:

Council Members—

Messrs P. L. Armitage, P. Y. Barnes, J. N. Bradley, R. T. E. Butler, Prof. W. C. Clark, Messrs A. T. Cox, M. P. Emms, K. P. Fitzgerald, A. Franklin, W. E. Hannah, P. W. Jenkins, R. F. Knowles, A. B. Matravers, J. G. Mugford, T. A. Pierson, D. J. Potts, M. T. Robson, A. J. Ross, J. R. Smith, M. E. Snowdon, D. T. Stickings, W. J. Thompson.

Life Members—

Messrs J. E. Foote, W. J. McKillop, G. Mugford, G. W. Thompson.

Staff—

Messrs B. F. Webb, D. R. Maindonald, R. T. Novis, H. L. Piper, B. J. Ross; Mrs L. K. Sutton (Office Secretary).

Wildlife Rangers

42 Honorary Fisheries Rangers

N.Z. Army—

134 weekly licences to C. Company, 6th Queen Elizabeth's Own Gurkha Rifles.

GAME LICENCES:

Council Members—

Messrs P. L. Armitage, P. Y. Barnes, J. N. Bradley, R. T. E. Butler, Prof. W. C. Clark, Messrs A. T. Cox, M. P. Emms, K. P. Fitzgerald, W. E. Hannah, P. W. Jenkins, R. F. Knowles, A. B. Matravers, G. H. Matravers, J. G. Mugford, T. A. Pierson, D. J. Potts, M. T. Robson, A. J. Ross, J. R. Smith, M. E. Snowdon, D. T. Stickings, W. J. Thompson.

Life Members—

Messrs J. E. Foote, W. J. McKillop, G. Mugford, G. W. Thompson.

Staff—

Messrs B. F. Webb, D. R. Maindonald, R. T. Novis, H. L. Piper, B. J. Ross; Mrs L. K. Sutton (Office Secretary).

Wildlife Rangers—

42 Wildlife Rangers.

WILDLIFE RANGERS

Andrew, I. C.	9 Richill Street, Christchurch 5.
Anderson, D. A.	25 Suffolk Street, Christchurch 6.
Armitage, P. L.	Whites Road, Ohoka, Kaiapoi R.D. 2.
Baggstrom, J. M.	109 Kings Road, Leithfield Beach.
Barnes, P. Y.	36 Buckley Street, Cheviot.
Bird, R. F.	George Street, Springfield.
Campbell, S.	388 Pages Road, Christchurch 6.
Challies, C. N.	22A Highfield Place, Christchurch 4.
Chapman, C. S.	50 Claridges Road, Christchurch, 5.
Climo, N. L.	P.O. Box 56, Leeston.
Colville, W. R.	7 Kiltie Street, Christchurch 4.
Curtis, S. G.	No. 4 R.D., Springston, Christchurch.
Dallard, C. J.	Old North Road, R.D. 1, Kaiapoi.
Duckworth, N. T.	"Wharfedale", Lees Valley, Oxford.
Edward, P. D.	79 Jacksons Road, Lyttelton.
Elson, W. P.	Springfield, North Canterbury.
Evans, J. H. N.	No. 2 R.D., Rakaia.
Forsyth, W. R.	132 Cavendish Road, Christchurch 5.
Gallavin, B. J.	88 Kianga Road, Christchurch 9.
Geange, P. L.	P.O. Box 12, Culverden.
Hart, R. A.	Little River, R.D.
Hawkins, J. C.	4 Pandora Street, Christchurch 9.
Hendry P.	Lake Coleridge
Hicks, L. G.	116 Blankney Street, Christchurch 2.
Jarman, L. J.	48 Johns Road, Rangiora.
Jeffreys, D. A.	18 Waitikiri Drive, Christchurch 9.
Kelly, G. R.	71 Cottonwood Street, Christchurch 9.
Kerapa, J.	18 Montague Street, Christchurch 4.
McDonald, B. V.	182 Johns Road, Christchurch 5.
Matravers, A. B.	44 Bowenvale Avenue, Christchurch 2.
Nicholas, W. L.	128 Somerfield Street, Christchurch 2.
Norris, B. N.	53 Head Street, Christchurch 8.
Oliver, C. A.	7 Hannah Place, Christchurch 5.
Randall, N. F.	Mt. Hutt Lodge, 2 R.D., Rakaia
Richards, F. D.	The Point, R.D. 4, Hororata.
Robinson, W. W.	160 Johns Road, Christchurch, 5.
Robson, P. J.	Little River Store, Little River.
Rodgers, I. J.	Taumutu Road, Southbridge.
Ross, A. J.	184 Horndon Street, Darfield.
Saunders, D. J.	150 McCormacks Bay Road, Christchurch 8.
Scadden, W. J.	5 Harrods Court, Christchurch 5.
Smith, M. G.	2 West Belt, Rangiora.
Washbourne, T. J.	Brookside, R.D. Leeston.
Webb, G.	Clarkville, Kaiapoi R.D.
Willum, L.	2B Bellbird Place, Hanmer Springs

STIPENDIARY OFFICERS

Maindonald, D. R.	Fish Hatchery, Heywards Road, R.D. 2, Kaiapoi.
Novis, R. T.	20 Tintern Avenue, Christchurch 4.
Piper, H. L.	Greenpark, No. 2 R.D., Christchurch.
Ross, B. J.	184 Horndon Street, Darfield.
Webb, B. F.	127 Main North Road, Christchurch 5.

COUNCIL AND COMMITTEE MEETINGS

AS FROM 1st SEPTEMBER, 1986, TO 31st AUGUST, 1987

	COUNCIL 11 meetings	FISH 10 meetings	GAME 13 meetings	WATER 3 meetings	EXECUTIVE 11 meetings
Armitage, P. L.	11	10	13		2
Barnes, P. Y.	11	10	12	3	
Bradley, J. N.	11	10	11	3	
Butler, R. T. E.	11	8	9	2	
Clark, Prof. W. C.	10	8	7	3	10
Cox, A. T.	9	10	12		1
Emms, M. P. (1)	11	10	13		1
Fitzgerald, K. P.	9	9	9		
Franklin, A (2)	3	3	3		
Hannah, W. E.	9	10	10		10
Jenkins, P. W.	9	8	10		
Knowles, R. F. (3)	11	9	12	3	11
Matravers, A. B.	11	10	11		
Matravers, G. H. (4)	6	6	7		
Mugford, J. G. (5)	10	8	12	2	
Pierson, T. A. (6)	2	0	1		
Potts, D. J.	10	10	13		10
Robson, M. T.	10	10	12		
Ross, A. J.	10	8	9		
Smith, J. R.	8	7	10		
Snowdon, M. E. (7)	10	8	10	3	9
Stickings, D. T.	7	3	3		
Thompson, W. J.	7	0	1		

(1), (3), (5), (7) = retired A.G.M. 1986; re-elected December 1986.

(2) = retired A.G.M. 1986.

(4) = elected December 1986.

(6) = resigned April 1987 owing to business commitments; position not filled owing to time limitation, as position was becoming vacant in 1987 per Society Rule 8 (5).

RETIREMENTS OF COUNCIL MEMBERS AND NOMINATIONS

Pursuant to Rule 8 (5) the following Council members retire this year (1987):

J. N. Bradley	Christchurch sub-district
A. B. Matravers	Christchurch sub-district
T. A. Pierson	Christchurch sub-district
D. T. Stickings	Christchurch sub-district
D. J. Potts	Ellesmere - Paparua - Wairewa - Mount Herbert - Akaroa sub-district

Pursuant to Rule 9 the following nominations have been received for these vacancies:—

Christchurch Sub-district (four vacancies):—

1. ANDREWS, Maurice Alan, Company Manager, 433 Greers Road, Christchurch 5.
2. MATRAVERS, Anthony Buckhurst, Operation Manager, 44 Bowenvale Avenue, Cashmere, Christchurch 2.
3. HAYES, Kirk Pretyman, Salesman, 87 Huntsbury Avenue, Christchurch 2.

Ellesmere - Paparua - Wairewa - Mount Herbert - Akaroa Sub-district (one vacancy):—

1. POTTS, Donald Joseph, Farmer, Greenpark, No. 4 R.D., Christchurch.

THE NORTH CANTERBURY ACCLIMATISATION SOCIETY

MINUTES of the ANNUAL GENERAL MEETING of the NORTH CANTERBURY ACCLIMATISATION SOCIETY held in the WINTER GARDEN HALL, 195 Armagh Street, Christchurch, on WEDNESDAY, 26th NOVEMBER, 1986, at 7.30 p.m.

1. **PRESENT:** Mr R. F. Knowles (Chairman), Councillors and approximately 30 further members.

2. **APOLOGIES:** It was moved Mr Bradley, seconded Mr Jenkins:

   "THAT THE APOLOGIES FROM MESSRS R. FOOTE, D. A. RULE, P. BRETHERTON, M. ROSS, B. WYNN-WILLIAMS, A. MacPHERSON, R. FRENCH, S. J. PRICE, BE SUSTAINED."

   Motion adopted by the A.G.M.

3. **PRESIDENT** — Welcomed and thanked all the members in coming to the A.G.M. and asked them all to stand in silence for the memory of Mr F. Gorton, a past President and life member, who died in March — this the A.G.M. did.

   In welcoming the members, the President stated he would use the same format as for last A.G.M. by going through the report page by page; he mentioned that some report pages were there for members information only, i.e., pages 58-79, 131, 143.

4. **CONFIRMATION OF THE MINUTES OF THE ANNUAL GENERAL MEETING OF 27th NOVEMBER, 1985:**

   Moved Mr Young, seconded Mr N. Bradley:

   "THAT THE MINUTES OF THE 1985 ANNUAL GENERAL MEETING, AS CIRCULATED IN THE 1986 ANNUAL REPORT, BE TAKEN AS READ AND CONFIRMED AS A TRUE RECORD."

   Passed by the Meeting on the voice.

   President asked if there were any queries concerning the Minutes; none were forthcoming.

5. **TO RECEIVE THE ANNUAL REPORT AND BALANCE SHEET:**

   President again stated that they would progress through the Annual Report page by page, and at the end of each report a motion to be proposed adopting that report.

   (a) **President's Report:**

   President asked for any discussion on his report — none was forthcoming.
   Moved Mr Bradley, seconded Mr Matravers:

   "THAT THE PRESIDENT'S REPORT BE ADOPTED."

   Motion adopted by the meeting on the voice.

   (b) **Fish Management Report:**

   Mr L. Dell commented on page 38 re the Cass Hill track condition and asked if it would be O.K. if N.Z. Salmon Anglers Association could upgrade the access. President and Mr Snowdon said it was O.K. as far as Society concerned; F/O Novis commented on the state of the track—would be a big help if track repaired — about ¾-mile in length.

   Mr D. Milne raised the point of the Society taking fish from Lake Coleridge and putting them elsewhere — he was against this and asked the Society to cease this practice especially as Society doing creel census (page 27). Mr Snowdon replied to comment. A discussion occurred on the pros and cons of taking fish from Coleridge; on putting barriers on Harper and Wilberforce Diversions to stop fish escaping and the legality for doing so — N.Z.E. have stated no to this idea.

   Moved Mr Franklin, seconded Mr Bradley:

   "THAT THE FISH MANAGEMENT REPORT BE ADOPTED."

   Mr Milne commented on the lack of a management policy on the South Branch in the Annual Report — Mr Snowdon replied that South Branch not as yet been handled. Mr Milne stated that last year he was assured at the A.G.M. of an N.C.C.B. policy being put forward — Mr Snowdon gave further replies and referred to the 4 volume N.C.C.B. Waimakariri River Management report.

   Motion was passed by the meeting.

   Mr G. Wyles commented on page 27 re rainbow trout liberation into Lake Selfe and was all for it — Mr Milne stated he applauded the fish release but not from Lake Coleridge.

(c) **Water Resources Report:**

Moved Prof. Clark, seconded Mr R. Butler:

> *"THAT THE WATER RESOURCES REPORT BE ADOPTED."*

Mr G. Wyles referred to page 97 and asked for an update on the Lake Katrine issue. Mr Snowdon gave a reply on the Reserve for the A.G.M.'s information, and background and up-to-date resume on the Reserve status; on the N.C.A.S. submission made in 1985 and 1986; and stated that nothing else had happened as all parties were awaiting further word from Lands and Survey who were supposed to review the Reserve in October but had not done so.

Mr Mugford commented on the cut-off times for farmers to draw off irrigation water, and asked if Society had any luck in getting any markers in, in rivers and streams, to show when irrigation should stop — Prof. Clark noted comments.

Mr Mugford also commented on the Catchment Board and Crown leases round Lake Ellesmere — 2 years + leases — and on the rumours that the leases were going to be freeholded. President stated Society would follow up the topic.

Mr Stanton mentioned the Travis Swamp (page 97) and asked which Councillor stated it not a good wetland — Mr Franklin replied; Society investigated and Wildlife Service stated swamp not of good wildlife value.

On page 88 (pesticides) Mr C. Hill asked if Society could let public and farmers know about these pesticides — Prof. Clark replied: by and large the solutions used on live stock O.K. for them, but for the insect life the solutions once excreted could be fatal — he gave a resume for the A.G.M.'s information. Dr McDowall also supplied comments on the avermetins — manufacturers now putting warning labels on containers saying solutions dangerous to aquatic life.

Mr C. Hill commented on L.Ellesmere being made a Lake of International Importance and that, N.C.C.B. against it — discussion occurred on this and on the Wildlife Service's N.C.O. issue.

Mr Mugford commented on the use of sprays around L.Ellesmere and along the Halswell River.

Above motion was adopted by the meeting.

(d) **Game Management Report:**

Mr Stanton mentioned page 112 re the decline in the duck populations and the reasons for it — stated Wildlife Service should get involved in banding large numbers of ducks to find out if duck numbers are declining. President and Mr Potts replied. President stated Society's job was to band birds and Wildlife Service's job was to analyse; Mr Potts stated Society had already contacted the W.S. concerning banding ducks but issue still not resolved — he gave a summary of what discussions had taken place and Society was awaiting the Wildlife Service's decision. Mr Armitage gave further comments on the issue. Mr Mugford gave his view on duck banding — if Society concentrates on stopping the shooting of ducks before breeding season then population would be O.K. — he gave his views of when to shoot ducks, how many, and was against those shooters wanting to shoot too many without a though for the future — keep season short and decoy numbers down. Mr Potts replied to Mr Mugford's comments — how do you get shooters not to shoot in fine weather?

Moved Mr C. Hill, seconded Mr G. Mugford:

> *"THAT IT BE A RECOMMENDATION TO THE INCOMING COUNCIL THAT DUCK SHOOTING FINISH IN THE TRADITIONAL QUEENS BIRTHDAY WEEKEND."*

Comment occurred on motion; on having duck season extended if need to; on making season too short and therefore loosing licence sales; on making L.Ellesmere an exception to motion; on giving 1987 shortened duck season a go first before making further decisions to reduce season (Mr Armitage). Mr Mugford had his right of reply on the above comments.

Above motion passed by meeting.

Mr Fitzgibbon queried reason for not issuing automatics (page 112) — Mr Potts replied. A discussion occurred on the legality of using automatics.

Mr Hill commented on pages 122-123 re selling of shooting rights by farmers Mr Potts replied that comments were by Mr Caithness who was noted for his outspoken views but N.C.A.S. do not want to be a party to such ideas.

Mr Stanton commented on the red-legged partridge release programme; Mr Potts replied — a person with a suitable property could write in.

Moved Mr Andrews, seconded Mr C. Hill:

"THAT THE GAME MANAGEMENT REPORT BE ADOPTED."

Passed by the meeting on the voice.

(e) **Financial Report:**

Moved Mr Hannah, seconded Mr Barnes:

"THAT THE FINANCIAL REPORT BE ADOPTED."

Mr L. Dell queried what the Society's increase share to be with increasing cost of licence to $35.00 — Mr Hannah replied he didn't have figures with him, but if sales good for next year then we should be better off.

Mr Franklin queried the doubtful debts (page 135) of $8606 and who were they Mr Hannah replied — over $2000 been paid back, rest over $6000 owed by one failed agent, Neil Papps Ltd — licences sold were game licences. Discussion then occurred on suspect licence agents (Mr Stanton), with President and Mr Hannah replying.

Above motion passed by meeting on the voice.

6. TO DECLARE THE ELECTION OF THREE UNOPPOSED CANDIDATES:

President announced that Messrs J. Mugford (Ellesmere-Wairewa Sub-District), M. Emms (Oxford-Kaiapoi Sub-District) and himself (Malvern Sub-District), had been elected unopposed for a further 4 year term.

7. TO INTRODUCE CANDIDATES FOR THE FIVE VACANT SEATS ON THE COUNCIL:

President called on the candidates who were nominated for the 1986 elections to stand — members had the opportunity to put various questions to all candidates. Mr C. Hill congratulated the three candidates who were elected unopposed, and gave a number of supportive comments; the A.G.M. acclaimed his remarks.

8. TO APPOINT SCRUTINEERS FOR THE FORTHCOMING BALLOT FOR COUNCILLORS, AND TO FIX THEIR REMUNERATION:

Moved Mr J.Mugford, seconded Mr Armitage.

MR C. HILL

Moved Mr R. Smith, seconded Mr M. Emms.

MR O. YOUNG

Moved Mr A. Matravers, seconded Mr N. Bradley.

MR K. RAMSEY.

Moved Mr A. Franklin, seconded Mr T. Pierson.

MR W. J. McKILLOP

It was resolved by the A.G.M.:

"THAT THE ABOVE SCRUTINEERS BE CONFIRMED, WITH MESSRS HILL AND YOUNG AS OFFICIAL SCRUTINEERS, AND MESSRS RAMSEY AND McKILLOP AS RESERVE SCRUTINEERS."

This was passed by the meeting on the voice.

Moved Mr Franklin, seconded Mr Matravers:

"THAT THE REMUNERATION BE THE SAME AS FOR 1985."

Passed by the meeting on the voice.

9. TO ELECT AUDITORS FOR THE ENSUING YEAR, TO FIX THEIR REMUNERATION:

Moved Prof. Clark, seconded Mr Potts:

"THAT THE SOCIETY'S AUDITORS, ARTHUR YOUNG, BE RE-APPOINTED AND LEAVE THEIR REMUNERATION TO THE DECISION OF THE INCOMING COUNCIL."

Passed by the meeting on the voice.

10. TO DECIDE THE FOLLOWING NOTICE OF MOTION WHICH WAS UNANIMOUSLY APPROVED BY THE NORTH CANTERBURY ACCLIMATISATION SOCIETY COUNCIL ON 19/2/86:

President introduced and read the notice of motion plus the Rule 4 (2) for the A.G.M.'s information:

> *"THAT MR W. J. McKILLOP BE MADE A LIFE MEMBER OF THE NORTH CANTERBURY ACCLIMATISATION SOCIETY, AND THAT THIS NOTICE OF MOTION GO FORWARD TO THE ANNUAL GENERAL MEETING."*

Mr D. Milne and Mr G. Mugford both gave supportive comments to the motion. On being put the motion was carried unanimously, to the loud acclaim of the A.G.M. President then gave comments welcoming Mr McKillop as a life member. and Mr McKillop spoke a few words in reply thanking the A.G.M.

Comment occurred on future life membership nominations—all have to go through the Council first.

11. TO TRANSACT ANY GENERAL BUSINESS:

(a) President mentioned the Roger Foote trophy — Secretary explained that Mr S. Fisher had won trophy for 1986, he read out the relevant weights and details and gave out a list of past winners.

Moved Mr G. Wyles, seconded Mr D. Milne:

> *THAT A PHOTOGRAPH OF THESE TWO TROPHIES, A LIST OF PAST NAMES, AND THE RULES FOR THE TROPHIES BE PUBLISHED IN THE NEXT ANNUAL REPORT."*

Mr L. Dell mentioned the new regulations re fishing competitions needing approval from M.A.F. and Societies: Mr Bradley stated fish trophies should be given by clubs rather than Society.

Above motion passed on the voice.

(b) Prof. Clark spoke on the Rakaia River Conservation Order Judgement by Judge Jeffries that has just been received, and read out parts of a letter from the Society's lawyer who suggest an appeal.

(c) Mr D. Milne commented on releasing fish into the Selwyn River system, and the last year's A.G.M. discussion on this matter (page 10), and asked what had happened this year — Mr Snowdon replied re flood conditions prevailing. Mr Milne asked if further eyed ova to be available for 1987 — Mr Snowdon stated topic under discussion.

(d) Mr Swift asked after the hut given by the Wildlife Service and had it been tidied up yet. President and Mr Potts reported that the Wildlife Service Lower Selwyn hut management and lease still under discussion. Mr Franklin spoke against the idea of taking over management of the hut as not in Society's best interests — Council should not spend Society's money on it.

Moved Mr G. Wyles, seconded Mr A. Franklin:

> *"THAT IT BE A RECOMMENDATION TO COUNCIL THAT SHOULD THE COUNCIL BE IN DISSENSION ON THE MATTER OF THE WILDLIFE SERVICE HUT, THAT THE COUNCIL CALL A SPECIAL MEETING OF MEMBERS TO ALLOW THE MEMBERS TO VOICE THEIR OPINION ON HOW THEIR MONEY SHOULD BE SPENT."*

Mr J. Mugford spoke to the motion and explained the background to the topic; Dr McDowall stated motion was ambiguous as unanimous decision needed either way, Mr Price stated cost of any general meeting could be greater than cost of hut; Mr Armitage spoke against motion, as did Mr M. Andrews — if motion goes through then get a precedence set in that every Council decision could go to a special meeting if some dissension. Mr Hannah also added comments re meeting on 1st December with Wildlife Service. Further discussion occurred on motion and on controlling Canada Geese. Messrs Wyles and Franklin agreed to withdraw the motion as proposed on giving their right of replies, and based on the extra information given during the discussion.

Mr Milne spoke against renting huts to anglers or shooters—should be free; selling, renting or letting rights sets a precedence for the future for eventual paying for angling and shooting.

(e) Mr C. Hill stated fish and game reports, in the Annual Report, should be alternated between years. President stated Executive would review matter.

(f) Mr Franklin then proposed a vote of thanks to the President and the chair, in the way he had run the meeting and for the year's business at Council. A.G.M. acclaimed these remarks. Mr Knowles replied with thanks.

(g) Mr Wyles expressed his thanks to the Council for another tremendous Annual Report — these remarks were applauded by the A.G.M.

THERE BEING NO FURTHER BUSINESS, THE MEETING CLOSED AT 10.00 P.M.

CHAIRMAN .... DATE ....

THE NORTH CANTERBURY ACCLIMATISATION SOCIETY

MINUTES of the SPECIAL MEETING of the NORTH CANTERBURY ACCLIMATISATION SOCIETY held in the Winter Garden Hall, 195 Armagh Street, Christchurch, on WEDNESDAY, 27th MAY, 1987, at 7.30 p.m.

1. **PRESENT:** Mr R. F. Knowles (Chairman), Councillors, and some 135 further members and licence holders.

2. **APOLOGIES:** It was moved Prof. Clark, seconded Mr G. Mugford:

   "THAT THE APOLOGIES FROM MESSRS T. PIERSON, K. FITZGERALD, L. DAY AND B. CLIMO BE SUSTAINED."

   Motion adopted by meeting.

3. **PRESIDENT:** Called meeting to order and asked Secretary to read out the Public Notice of 9/5/87, calling the meeting pursuant to Rule 19 of the Society's Rules. President introduced Secretary and Mr Potts, Chairman of Game Committee, to meeting — Mr Potts to give a brief review of the Yarrs Flat Reserve Draft Management Plan and Society's submission; he would give everyone a chance to speak once to allow others time to have their say. Then, when all had spoken, then he would accept any recommendations from the meeting to the D.M.P. or Society's recommendations. Meeting's recommendations will be discussed by Council in June.

4. **MR. POTTS:** Then spoke to the meeting and reviewed the two draft Management Plans from Wildlife Service (now D.O.C.). First one planned for 3 zones in Yarrs which would have severely affected shooting.

   The second draft was more sympathetic to Society and shooters after special meeting with the Society on 16/3/87. The 2nd plan however had no shooting allowed in Zone 3 (near Wolfe's Road). We are now at this meeting to hear views of the members and licence-holders, considering A.S.M. had paid for 71% of the property. Plan has a proviso however — if D.O.C. allows shooting in Zone 3 for May and June duck season then N.C.A.S. has too give up shooting in parts of the Greenpark Sands—Jarvis Road to Embankment Road, as a wadering bird refuge. Mr C. Hill queried the acreage for this proposed refuge—area about 1200 acres and ¾-mile long but boundaries are not known as yet.

   President then invited Mr G. Mugford to summarize the history of the Yarrs Flat purchase in 1977. Mr Mugford accepted and gave a resume:—was originally offered in 1969 for sale—N.C.A.S. (Mr Mugford) went to $10,000, and property eventually sold for $11,500. In 1977 property was up for sale again—determined not to loose again Lands and Survey person was given job to purchase, to $30,000—Mr Mugford knew there was $20,000 in A.S.M. kitty plus Wildlife Service was keen to see property bought. So he went to $48,500 in a final bid off his own bat—his telephone never rang so hot. Purchase went to Wellington for approval, which was given after some people recovered from shock. Further comment from Mr Mugford then followed—the Wildlife Service $14,000 was actually from sportsmen as it was levy type money, so in effect A.S.M. had bought the lot. Wildlife Service people at the time honorable and keen shooters including Messrs R. Adams and R. Cavanagh.

   President then opened up the meeting for discussion.

   Mr J. Chidgey asked several questions—was an invitation to D.O.C. given and did they accept or decline. President replied that Mr R. T. Hutchinson (D.O.C.) was rung and invited, but since meeting is of members then DO.C. not asked to attend.

   Mr J. Chidgey then mentioned N.C.A.S. had excellent relationship in past with Wildlife Service—thus this "hair-brained" scheme must have an author—who? Mr K. F. D. Hughey prepared report with input from other Wildlife Service staff—President made point that Wildlife Service (D.O.C.) must make Draft Management Plan as per law of the Wildlife Act. Mr Chidgey then made further remarks re the Yarrs areas and Ellesmere shooting — a prized asset (comments from overseas visitors), and so lets keep it for future generations of shooters (comment drew applause).

   Mr D. Rule asked how wide buffer Zone 2 — about 300 metres. At this point Mr Potts gave concise areas of zones as possible—total 600 acres, about 1-3rd in Zone 3 (reserve proposed); Zone 2 = buffer zone of 300 metres width; Zone 1 = about 2/3rds, more or less, of area. He then described the property from L2 River to Embankment Road.

   Mr G. Bridges queried principle of giving area away which was purchased by sportsmen—best to concentrate on how we can keep it. Mr Potts replied re N.C.A.S. already had discussed plan with D.O.C., and given them the sportsmen's views which lead to the second plan—it was on this 2nd plan that the N.C.A.S. submission based which was well written by Prof. Clark.

Mr B. Hunt commented on the W.S. contribution being really from A.S.M. funds, and this should be further explained to D.O.C.

Mr Rule commented on the number and length of walkways in N.Z.; he had researched these walkways—cannot carry a gun within 100 metres of a walkway. Thus people walking in present walkways always under threat from rifles—therefore this 300 metre buffer Zone 2 was a lot of baloney. He queried a number of points in the plan, and their legality; we have to concede the point re the walkway but not the size of the buffer Zone 2. Firearms Act no assistance as here "commonsense" prevails—no specific limit.

President pointed out we have a draft M.P.—a walkway is not guaranteed—could be dropped; plan is still being argued and final plan will be what the majority of people want. Thus reason why Society urges all interested people to put pen to paper.

Mr J. Mugford spoke on the D.M.P. — he mentioned the bias in the plan for bird watching and bias against game shooting, and he gave examples from the report. He mentioned bird watching not being in conflict with shooting as at different times of year. He mentioned the giving up of 20% of the Greenpark Sands refuge in May and June in Yarrs Reserve (Zone 3) which has happened for 100 years. He also commented on shooters not being allowed to fall back into Yarrs backwaters in a high lake as these areas in Zone 2 and closed. D.M. Plan also makes mention of D.O.C.'s other four reserves around the lake which could be used also. Number of maimais in Yarrs is 92 not 42 as in Plan, and this does not take into account the other stands or shooters in backwater areas or who use natural cover. The other proposed refuge on Greenpark Sands has 50+ stands all of which will be lost. Mr Mugford also mentioned not taking guns or dogs on walkways which is dangerous when it comes to shooting and retrieving birds—all shooting in boggy areas as high ground part of walkway. Applause followed these comments.

Mr C. Hill spoke to D.M.P.—is leasee of Yarrs Flat area. He commented that he was for both shooting and bird watching. He mentioned the access conflict between the Lands and Survey report on Lake Ellesmere, by J. Palmer, and that in the D.O.C. plan. He stated that there was no conflict between bird watching or shooting, as watching is done in fine weather, migrations not in shooting areas, while season not problem except possibly for end of special goose season. D.M.P. accuses shooters of scaring birds away but with about 140+ species still in area shooters are not doing a very good job of scaring the birds. He then read a report on Ducks Unlimited re the Sinclair Wetland, for the information of the meeting. Again, comments met with applause.

Mr P. Armitage, Chairman of the North Canterbury Game Shooters Club, raised a number of points against the D.M.P.—we bought it, we keep it; Wildlife Service wanted Woodend Lagoon refuge altered then backed out—none of the big $1000's were spent as proposed; what's to happen to area when closed—is Canada Geese going to pour in and if so how to control them, if cannot, shoot them? If D.O.C. has so much money, why not spend it elsewhere, like Hart Creek refuge which is overgrown with willows. If bird watchers bought properties, would they give shooters same privileges that shooters give them at Yarrs Flat. Applause greeted views.

Mr G. Berry agreed with previous speaker—D.M.P. should be totally opposed; cannot have an easy or any working relationship with a Government department, as Deerstalkers have found out years ago — N.C.A.S. only now just finding out. Suggested we find if ownership of D.O.C. a legal one—if not then Government's bluff can be called.

President asked Mr G. Mugford if Crown has legal title; Mr Mugford replied that rent has always gone to Society.

A member (Mr Dodd) said that question of legality should be given to lawyers not Mr Mugford; if we challenge it may find title with Crown, but land being held in trust for N.C.A.S. and therefore D.M.P. not legal.

Prof. Clark commented on D.M.P. being a legal requirement; we have to see plan is in our favour. He referred to the N.C.A.S. submission, and the summary in which N.C.A.S. may be obliged to seek return of land.

Mr P. Ritchie made a few suggestions from his experience at Loch Katrine—they have a good lawyer, and asked N.C.A.S. to get Mr M. Snowdon to contact their Association's lawyer for advice. Five queries: does Land Corp intend to charge for bird watching; where does Land Corp expect bird watchers to come from; what rare species does Land Corp expect to protect from buffer zones; what number of watchers and walkers are they catering for; who does Land Corp intend to control the area; and he also mentioned the L2 sewage from Lincoln. President said D.O.C. not Land Corp, involved with the Draft Management Plan.

Mr S. Muir commented on no signs on L.2 side at present—bird watchers could be confined to this area without affecting shooters.

Mr A. McPherson commented on speaking to D.O.C. regarding the other properties owned by D.O.C.—what will happen to these and present shooting. Cannot get satisfactory answer from anyone there. Hence, it is not just Yarrs Flat we are talking about. President replied.

Mr D. Farmer stated that from what he has seen, everyone using open areas are getting on just fine, so why all the hazzle, just leave status quo.

Mr R. Goldie commented on the access question, and believes that with Corporatisation, Government eventually wants to close up Ellesmere altogether to recreation especially shooting.

Mr C. Hill provided further comments.

Mr O. Young commented on seeing Yarrs from Embankment, Jarvis, Clarks Road, over 23-24th May—had spoken to bird watchers who said that they had no problems with shooters.

Mr G. Wyles asked if President could inform meeting on what N.C.A.S. Council has done on seeking legal advice to D.M.P., on terms under which land title and land handed over to Crown, which would clarify the land transaction. President replied.

Mr J. Moore commented on it being irrelevant as to how many stands on land —we bought property, and that is all that matters.

Mr J. Hall asked if D.O.C. intending to do anything on lake to encourage bird species now they have all this land—President said no, N.C.A.S. has no knowledge of any research from D.O.C. Lands to be locked up into a situation where nothing can be done to harm them.

Mr R. T. Hutchinson (Senior Conservation Officer) stated D.O.C. will be looking at diversionary feed areas round the lake. A member stated he would like to hear Mr Hutchinson's views on comments from the meeting and his qualifications — Mr Hutchinson obliged although President stated Mr Hutchinson not here to be on witness stand. Mr Hutchinson said D.M.P. and this special meeting part of the statutory and democratic rights as given by the Act, whatever the outcome.

Mr G. Mugford gave his views on the D.M.P., on what should be done on the matter; on past historical happenings in the area; on loosing past property owners and Wildlife Service officers who really knew what the land was for and were honorable men. Applause followed.

Prof. Clark spoke on the issue; he read out a proposed motion: stated no conflict between shooters and bird watchers; no evidence for need for an area to protect waders; no need for heavy handed D.M.P. for area apart from what N.C.A.S. is doing now.

Moved Prof. Clark, seconded Mr J. Mugford:

> *"THAT THIS MEETING WHOLEHEARTEDLY SUPPORTS THE COUNCIL OF THE NORTH CANTERBURY ACCLIMATISATION SOCIETY WITH ITS EFFORTS TO PRESERVE THE EXISTING USE AND MANAGEMENT OF THE YARRS FLAT WILDLIFE RESERVE, AND EXPRESS ITS TOTAL OPPOSITION TO ANY REDUCTION OF EXISTING SHOOTING ACCESS TO THE GREENPARK SANDS."*

Mr W. J. Thompson (Farmer representative to N.C.A.S.) spoke to D.M.P.—plan is a very biased use of land.

Above motion carried unanimously by the voice.

Motion does not in any way restrict bird watchers or any present usage.

Moved Mr Berry, seconded Mr Wyles:

> *"THAT THIS MEETING INSTRUCTS THE COUNCIL OF THE NORTH CANTERBURY ACCLIMATISATION SOCIETY TO RESEARCH THE TITLE OF THE LAND, WITH A VIEW TO RECLAIMING IT FOR THE N.C.A.S."*

After discussion, an amendment was moved Mr Dodd, seconded Mr Wyles:

> *"THAT WE RETAIN LEGAL COUNSEL TO ESTABLISH THAT THE*

> *CROWN IS TRUSTEE FOR THE NORTH CANTERBURY ACCLIMATISATION SOCIETY AS BENEFICIAL OWNER OF THE YARRS FLAT AREA."*

Mr Hannah queried whether we shouldn't write to D.O.C. first to find facts, as above amendment very expensive. Mr Dodds disagreed as the amendment gives the Council of N.C.A.S. a tactic to use. Several members stated no good approaching D.O.C. direct as you will get nothing.

Above amendment was put, and passed by the voice, and so became the motion.

On being put the motion was passed unanimously.

Moved Mr J. Chidgey, seconded Mr Dodd:

> *"THAT THE COUNCIL BE EMPOWERED TO ACCEPT DONATIONS FROM THE MEETING TO BE USED TO OFFSET EXPENSES."*

Passed by the meeting.

Mr G. Mugford thanked the President for running the meeting, and N.C.A.S. for calling meeting and showing support to shooters. President replied and thanked everyone for coming. Mr P. L. Armitage then reported on an up-and-coming shooters field day being arranged for July

THERE BEING NO FURTHER BUSINESS, THE MEETING CLOSED AT 9.45 P.M.

CHAIRMAN .... DATE ....

PRESIDENT'S REPORT

(R. F. KNOWLES)

INTRODUCTION

Ladies and Gentlemen,

It is my pleasure on behalf of your Council to present this Annual Report, which, together with the Balance Sheet for the year ending 31st August, 1987, is a resume of the 123rd year of the North Canterbury Acclimatisation Society. The Committee Chairmen have again submitted very detailed reports so that you, as members, are kept well informed of the variety of management decisions which must be made to protect and preserve your sport.

The Council relies on the field staff to implement our policies and in this capacity they have again worked well for the Society movement. Their jobs vary between pleasant work with fish and game, to the difficult role of law inforcement, and I thank them for the good sense and diplomacy with which they carry out their duties.

Mrs Kay Sutton is our Office Secretary, and her efficiency and pleasant personality is appreciated by us all. I again record our thanks to Brian Webb for his assistance and proficiency at meetings, and in the necessary dealings with Local Bodies and Government Departments.

Changes to Council

Mr A. Franklin did not seek nomination for the Council this year, and we thank him for his independent stance when debating the issues of fish and game. He had served on the Society for eight years.

The 1986 Society elections required a ballot for the Christchurch sub-district, with Mr M. E. Snowdon and Mr G. H. Matravers being successful. I welcome Mr Matravers to the Council. Mr J. G. Mugford, Mr M. P. Emms and myself were elected unopposed for the country sub-districts we represent.

We once again appointed Professor W. C. Clark and Mr W. J. Thompson, as supernumerary members as per Society Rule 11.

In April 1987 we accepted the resignation of Mr T. A. Pierson, and this vacancy was not filled. Mr Pierson's business commitments had kept him away from a lot of meetings, as per Rule 8(9), and sometimes his work as a hunting guide brought him into conflict with our views on game management. The Council, however, valued his different viewpoints and wish him well in the future.

Special Meeting

A special meeting of members was called on 27th May, 1987, as per Rule 19 of the Society's Rules, to discuss the Yarrs Flat Draft Management Plan drawn up by the Wildlife Service. The minutes of that meeting are elsewhere in this report.

The meeting was called to express concern at the restrictions, that the draft report proposed, on game shooting in the reserve, which when purchased was funded mainly by Acclimatisation Society money, then vested in the Crown. The meeting supported the North Canterbury Acclimatisation Council's submission to the Department of Conservation, requesting changes to the plan to allow for shooting, and goose management. We believe we have been good guardians of the reserve. The recommendation that we retain legal counsel to investigate whether the Crown was Trustee for the N.C.A.S. as beneficial owner of Yarrs Flat, was still under review at time of writing.

The Yarrs Flat Reserve was purchased largely as a result of the efforts of our life member, George Mugford, and I believe we deserve better recognition from the D.O.C. for our efforts 10 years ago to preserve wetlands around Lake Ellesmere. A collection at the end of the meeting was presented to me, to be used to help with hall hire costs etc. This colletcion amounted to $201.43 voluntarily donated by the 155 people present, was gratefully accepted by the Society's Executive Committee on 3/6/87, and paid for about 53% of the meeting costs.

Councillor Field Trip

On the 21/3/87, Councillors and their wives and families went on a field trip to the Tentburn salmon farm responding to an invitation from the N.Z. Salmon Company. Adult salmon were entering the complex on the incoming tide, and we had a very interesting time viewing the establishment and observing the leaping salmon returning. A visit to the Rakaia Huts was our next stop to discuss with residents the desirabality of providing a closed game area for the top part of the lagoon. At the time of writing, this lagoon issue is still being debated. Mr A. Ross, Councillor, arranged for the days activities.

Publicity

The Society's Publicity Officer for 1986-87 was Mr J. N. Bradley, who spent considerable time and effort designing displays depicting aspects of the Society's work and functions. The displays were composed of labelled photographs and posters attached to our mobile kit units, which can be assembled and dismantled for ease of transportation. Topics included connservation issues, fish salvage and trapping of spawning migration, wildlife (gamebirds), gamebird hunting and bird banding, and other topics showing the multitude of Society jobs relating to our functions and responsibilities as per the Wildlife and Fisheries Act. Locations for the displays included the Outdoor Recreation Centre, Culverden A. & P. Show, and the Gameshooting Field Day held at the Belfast Gun Club. Mr Bradley also gave a number of talks on request, to various clubs and organisations concerning the Society's work and the Acclimatisation Society Movement in general. The Society's Council considers these activities of the Publicity Officer, to be of vital importance in our efforts to disseminate A.S.M. and conservation information and to explain to the general public our role and functions as laid down by Law. Thanks to Mr Bradley for a job well done.

Summary of N.C.A.S. Offences, 1/9/85 to 31/8/86

During the 1985-86 season, a number of court cases, warnings to offenders, and failure-to-produce notices, were proceeded with or issued. In summary these were as follows:—

— total number of cases proceeded with to court = 30, of which 7 failed (withdrawn or lost on technicality), and 23 were successful.

— successful offences included fishing without a current or valid licence, using natural bait in a high country lake, taking trout in a flounder net, hunting protected wildlife, spearing trout, fishing above Rakaia white posts in closed season, taking game birds in closed season, and obstruction.

— total costs awarded (fines, court costs and Solicitors fees) = $5180

— Solicitors fees = $4068

- number of Executive Committee warning letters sent = 16
- number of failure-to-produce notices issued by Rangers, to licence-holders not having their current licences on them and thus could not produce the licence on demand = 156.

General Local Topics:

1. Two sets of the three-volume "Waimakariri River and Resource Survey, published by the North Canterbury Catchment Board, were purchased during August 1986 (for $60 a set), with the volumes being distributed to Councillors for review; submissions closed 10/10/86. Once received, the submissions would be analysed by the Catchment Board for the forthcoming Waimakariri Management Plan. The Resource Survey volumes give a very detailed and informative review of the catchment, and provide useful material for future reference. This topic will be a continuing one for several years yet, while the resources are worked into a management plan and further submissions called for.

2. During July-August 1986 the Society was approached by the Combined States Services Commission with a detailed report, in which were itemised a series of 8 options for possible reorganisation of the fisheries in New Zealand. We were asked for our comments, to list the options in order of priority, and send to Wellington by 25/8/86. Councillors reviewed the various options, chose options 2 ,1, 4, 3 in that order, wrote a rationale for the preferences, and stated that options 5 to 8 were so totally unsatisfactory that no tabulation in order was possible. Our submission was sent to Wellington as requested, with a copy to our National Executive in Wellington for their information.

3. A copy of the National Water Protection Committee of N.Z. Acclimatisation Societies Technical Publication No. 5, has been received, entitled "Mining Guidelines", compiled by Mr B. R. McPherson. The 43 page document is for use by individual Societies for planning activities prior to and during operations to avoid as much as possible the impacts on water and soil resources, both on-site and downstream of the mining. The emphasis is on salmonid protection, as well as the protection of the native aquatic flora and fauna, and their habitat. It covers the effects of mining on aquatic life, the West Coast scene which has most of the mining problems, explains how mining privileges are processed, describes the legislative protection of water and soil resources, and gives details of three case histories, 2 from Southland and 1 from the West Coast. The report should provide a useful document for Society Staff in understanding mining water rights and procedures.

4. The Society sent a letter during March 1987, to Mr J. Guthrie, our Solicitor at the Rakaia River National Water Conservation Order hearings, requesting that he lodge an appeal, with the Court of Appeal, against the judgement of Judge Jeffries from the High Court who ruled in favour of the Federated Farmers appeal case on various points of law. Our appeal will give a final decision on the points of law relating to the Water and Soil Conservation Act 1967 and the modifying 1981 Amendment. At the time of writing, the Appeal case has not been heard.

5. A letter was sent during March 1987 to the 11 local M.P.'s, and various M.P'.s on the Select Committee, setting out the Society's concerns relating to facets of the draft Conservation Bill now under discussion and review. Our letter pointed out anomalies under Section 38 of the Bill which, if implemented, would virtually have banned fishing and shooting on unoccupied crown land, i.e., Lake Ellesmere. The Society considered that this Section 38 was obviously written by some legal expert having no sporting experience, or not given much

legal thought to it, and really was not the intention of Government or the writers of the Bill. We trust that the Bill will be altered before coming law.

6. A letter was sent to the Department of Lands and Survey, in March 1987, enquiring as to the fate of the unoccupied and short term Crown lease lands, and L.I.P. lands, around Lake Ellesmere. The Society expressed concern that these lands not be freeholded, and if there was a danger of such action then we requested a hearing similar to the 22/9/86 hearing in front of the Lands Settlement Committee. The reply to our letter is printed in the **Water Committee Report.**

7. Since May 1987, the Society has been regularly informed of the setting up, structure, roles, functions, and personnel involved, within several of the new Government Departments and Corporations which came into being as from 1/4/87. The Ministry of Agriculture and Fisheries for instance, has four business groups called MAFFish MAFTech, MAFQual, MAFCorp; while the Department of Survey and Land Information (reconstructed remnant of the old Lands and Survey Department) will carry out all surveys, mapping, city planning etc, work, with the aim of recovering 50% of its costs by 1990-91, part of the user-pays policy. Department of Conservation, Landcorp, Ministry of the Environment — all have sent information brochures and leaflets. Now all it needs is the patience and understanding, to make it all work.

Government Department Changes

On the 1st April 1987, the Wildlife Service ceased to exist and its work was transferred to the Department of Conservation. The M.A.F. Freshwater Fisheries Management and Research remains unchanged but will be funded by D.O.C. This has not altered the functions of the N.C.A.S., as spelt out in the Fisheries Act 1983 and the Wildlife Act 1953. What it does mean is that D.O.C. is now responsible for the administration of the Acclimatisation Societies. The Government decision also assigned the following fisheries functions to the D.O.C.:—

(1) preservation of indigenous fishes.

(2) protection of fish habitat

(3) protection of recreational fisheries.

N.C.A.S.'s relationship with the Wildlife Service had deteriorated in recent years, and so we welcome the new spirit of co-operation and liaison we are having with the personnel in D.O.C. I refer in partciular to Mr Dick Hutchinson who has attended our Council meetings regularly and been most helpful and constructive. We must all strive to preserve the enthusiasm present in the new environmental administration.

By March 1988 the functions and powers of the Acclimatisation Society Movement will have been looked at by Government, a part of a quango review, and we await with interest the result.

Chairman's Report, Freshwater Fisheries Advisory Council, July 1987

1. Over the last ten years, sales of adult whole season fishing licences appear to have reached a plateau fluctuating annually around the 48,500 mark (figure 1), By contrast, sales of junior licences have been declining each year over the same period, although the trend was reversed in 1985-86 with a 1% increase. It is relevant to note that an increasing number of Societies are issuing free fishing licences to children under 10 years of age which are not included on the graph, e.g., 1984-85 = 5600 free licences.

Thus, it is clear that the popularity of angling is not keeping pace with the increase in N.Z.'s population and this trend should be noted with concern by the A.S.M. Nationally, adult whole season licence sales increased by 2.5% although total licence revenue increased by 14% owing to the increased price of fishing licences (Figure 2). This growth compared favourably with the annual rate of inflation (31/3/86) of 13%.

2. Rakaia River invertebrate drift Study (P. M. Sagar, G. L. Glova) — Studies are being carried out in the Rakaia River to examine invertebrate drift and its use by juvenile quinnat salmon. Analysis of samples collected during spring showed that the young salmon started to feed at dawn, when most of their prey were aquatic taxa. Prey of terrestrial origin dominated the diet at dusk in summer, but formed only about 1% of the diet during spring, when few such prey were available. During spring, the fish preyed selectively on large nymphs of **Deleatidium** spp. However, in summer, chironomids, other dipterans, and trichopterans were consumed to the exclusion of **Deleatidium.** Further samples were taken in November 1986, and will be analysed to provide more information on the timing of the onset of feeding in juvenile quinnat salmon, and on diurnal variations in the composition and size of their prey.

3. A further inquiry into salmon fishing and river flow in the Rakaia River (G. J. Clova) — To learn more of the effect of river flow on salmon fishing in the Rakaia River, we analysed the catch of 20 experienced anglers for the 1985-86 salmon fishing season. Of the 499 fish caught by the diarists, most were taken at the end of freshes in January and March, when the mean daily flow ranged from 120 m^3/s to 160 m^3/s. The catch was much lower in February because of the persistence of flows as low as 100 m^3/s, followed by a period of flooding until the end of the month, with a mean daily flow between 320 m^3/s and 476 m^3/s. These findings tally well with those from our study of the 1984-85 salmon fishing season.

4. Final studies on the interaction between juveniles of quinnat salmon and brown trout in an artificial stream (G. J. Glova, M. S. Field-Dodgson) — We completed the third and final part of our study on the interaction between juveniles of quinnat salmon and brown trout in the Glenariffe Stream simulator during February and March 1986. The work comprised two sets of experiments:

1. To test how the presence of age 1+ brown trout affects the interaction between fry of quinnat salmon and brown trout.
2. To determine the time budgets of the activity of the behaviourally dominant brown trout fry in the presence of quinnat salmon fry.

The results of all three sections of the study will be combined and published.

5. Further stream simulator studies on quinnat salmon fry (G. J. Glova)— During September and October 1986, experiments were carried out in the Glenariffe Stream simulator to learn more of the effect of changing flows on the behavioural ecology of two types of post-emergent quinnat salmon: those that spend part of their life in their stream of origin, and those that do not. The results will be pooled with those of the previous year's study.

6. Canterbury mudfish habitat and reserve studies (G. A. Eldon) — There has been no progress with the proposed reserve at Hororata, presumably because of the upheaval in the environmental agencies. Three attempts to establish further populations of mudfish appear to have been unsuccessful. Considerable effort was made to establish a mudfish sanctuary at Peacock Springs, but an increase in water demand for the salmon farm left the mudfish with no habitat worth the name.

7. Assessment of the marine by-catch of salmon (R. A. Dougherty) — In view of the by-catch agreement between salmon farmers, sea food processors, and marine fishermen, the Freshwater Fisheries Centre has been collecting data on salmon caught at sea to determine the extent of the by-catch. It has been estimated that, between October 1984 and April 1985, 42 tonnes of salmon were landed from the sea between Kaikoura and Otago. This included 1446 tagged salmon originating from hatcheries, and the total catch comprised 11 tonnes of hatchery fish and 31 tonnes of wild fish. Although these figures represent a three-fold increase on the previous year, it should be emphasised that the salmon by-catch agreement is now more widely recognised, and that the area it covers has been extended northwards by 150 km and southwards by 100 km.

8. Promotion of salmon tagging and enhancement studies (R. A. Dougherty, M. Flain) — Tagged salmon are released from salmon farms and from the Glenariffe Salmon Research Station on the Rakaia River. During the 1985-86 fishing season, 2571 heads from these fish were returned by anglers, and the promotion of such returns is an important part of the salmon tagging programme. This year, one fish was recovered from the Waingongoro River near Hawera. giving the first recorded instance of a tagged salmon being found in the North Island. None was recovered from the West Coast. A total of 121, 2-year-olds were recovered from releases made at McKinnons Creek on the Rangitata River, indicating the early success of yet another ocean ranching salmon farm. Sponsored competition for sea-run quinnat salmon angling have become an annual event on the Waimakariri, Rakaia, Rangitata, and Waitaki Rivers. Commercial firms offer substantial prizes, and the Freshwater Fisheries Centre (FFC) also offers prizes to encourage anglers to present all their catch for scrutiny. Examination of coded-wire tagged fish and collection of scale samples from untagged fish supplement well the other means of obtaining information on the seasonal catch of salmon. In 1986, 451 salmon caught at the competitions were examined by FFC staff. Only 15 of these were tagged, probably because the competition on the Rakaia River, where the greatest number of tagged juveniles is released, was cancelled because of floods.

9. Diet and feeding of juvenile salmon (M. S. Field-Dodgson) — The diet and feeding of juvenile salmon and trout has been studied in Double Hill Flats Stream, on the upper Rakaia River. Although both species feed most intensively at dawn and dusk, and little or not at all during the hours of darkness, they differ markedly in their feeding strategy. Salmon remain in the water column of the stream and feed almost exclusively on the drift. Trout, on the other hand, remain near the stream bed, and take food from the benthos as well as the drift. Trout also have inactive periods, when they rest with their pectoral fins on the stream substrate, or hide under stones. These behavioural differences are confirmed by their stomach contents. Salmon stomachs contained a large number of caddis imagos and few **Deleatidium** spp., which reflects their preference for drift. In contrast, trout stomachs carried a great number

8. Marlborough—administration = $13,263
9. Marlborough—Top Valley Wildlife Management Reserve = $ 1,324
10. Nelson—Ranging = $ 6,000
11. Nelson—Gratuity payment to retiring Field Officer = $10,000
12. Nelson—field officer removal expenses = $ full amount
13. South Canterbury—Lake Alexandrina = $ 8,365
14. Waitaki Valley—administration = $ 1,255
15. West Coast—administration = $14,423
16. Westland—administration = $33,716
17. Dr. M. Williams—Winnipeg symposium (50% North Island) = $ 1,500
18. Marlborough—Prosser Pond subsidy = $ 368
19. Marlborough—Lake Rotoroa fencing = $ 2,200

TOTAL = $129,014

Election of Officers:—

(a) President — Mr Low was elected unopposed.

(b) Vice-President — Dr Scott was elected unopposed.

(c) Executive — nominations were received for Messrs. Green, Greenall, Griffin, Knowles and Wilson, to join the President and Vice-President. Following a ballot Mr Green and Mr Knowles were elected to the Executive, the Executive thus consisting of Messrs. Low, Scott, Green and Knowles.

(d) Freshwater Fisheries, Advisory Council—Mr Smith advised that Mr Tonkin was not due for re-election until 1988 and that Dr Scott was a University appointee. One vacancy therefore existed and on the nomination of Knowles/Scott, Prof. Clark was elected.

(e) National Council Committee — Messrs Green, Greenall, Knowles, McLay had been nominated and following a ballot, Messrs. Green, Knowles and McLay were elected.

(f) Finance Committee — stemming from Mr Savage's report and the number of C.S.I.A.S. members on the National Finance Committee, it was resolved:—

"That the C.S.I.A.S. Finance Committee consist of three appointees".

Messrs Anderson, Hannah, McKenzie, Savage and Shutt had been nominated and following a ballot Messrs Anderson, Hannah and Savage were elected.

Further business conducted at the South Island Council:—

(1) A motion was adopted concerning the future of the Acclimatisation Society Movement, as follows:—

"That, being anxious and concerned about the vagueness and uncertainties attendant upon assurances received to date concerning the planned Government review of Acclimatisation Societies, this Annual General Meeting of the C.S.I.A.S. instructs the National Executive of the Acclimatisation Societies to take all actions necessary to preserve and protect those features of our organisation which are essential for our continual effective existence, namely:—

1. Our status as statutory bodies with responsibility to Parliament;
2. Responsibility for control of our funds;

3. Control of our own staff;

and, further, that the National Executive be authorised to expend such funds as they deem necessary to achieve these ends, and, finally, that this authorisation remain in force until the 1987 National Conference".

(2) Mr Ken Andrew, South Canterbury, was elected a life member of the South Island Council, in recognition of his contribution to the Society movement.

(3) For convenience, it was decided that in future half-yearly meetings of South Island Council (A.G.M.) will be held in Christchurch until further organisation changes take place.

Conclusion:

The restructuring of Government Departments, especially the formation of the Department of Conservation; the Yarrs Flat Draft Management Plan; and the forthcoming quango review of Societies; have at times diverted our energies from the tasks ahead. We must continue to ensure that the environment for fish and game birds, in North Canterbury, does not suffer further degradation, so that future generations may enjoy that which we now have—productive fishing and game shooting at a reasonable price.

I sincerely thank the North Canterbury Acclimatisation Society Council and staff for their help and support during the year. The Council thanks the following Departments for their continued co-operation: Department of Conservation, Ministry of Agriculture and Fisheries, Ministry of Works and Development, Lands and Survey; plus the North Canterbury Catchment Board, Christchurch Drainage Board and various County Councils. To the members and licence holders of the North Canterbury Acclimatisation Society, and the following clubs: Canterbury Anglers, N.Z. Salmon Anglers, Canterbury Flyfishing, Christchurch Fishing and Casting, Amuri Rod and Gun, and the North Canterbury Game Shooters, thank you for any comments during the year and concerns expressed; we want to encourage dialogue with you all.

R. F. KNOWLES,

President.

FISH MANAGEMENT COMMITTEE REPORT

(M. E. SNOWDON)

(A) INTRODUCTION

The following report will help members to understand the work of the N.C.A.S. in the management of its fisheries during the 1986-87 year. It is fortunate that, although salvage work was necessary, drought conditions were not as bad as they have been in the past. Most of the salvage required was a result, directly or indirectly, of abstraction of water from natural waterways, and also a result of the constant problem of drainage construction in headwater wetlands. It should be understood by anglers, that keeping water in our Canterbury rivers and streams is one of the most important aspects of fisheries management in this district. I am indebted to the staff, Councillors, and helpers who have carried out the work of the Fish Committee this year.

The 1987 Fish Priorities were:—

(a) **Main Programme:**

1. Salmon and trout spawning surveys:—
   - (a) Selected streams in the upper Waimakariri River for salmon, including the Poulter River (2-weekly trips) with helicopter usage; April to June at monthly intervals.
   - (b) Selected streams in the upper Waimakariri River for trout; August and September.
   - (c) Survey of Ashley River above gorge for trout and salmon redds, plus defining the available spawning areas; mid-May to late June.
2. Redd counts in the Lake Coleridge streams; late May (salmon), September (mixed).
3. Continue Lake Coleridge opening weekend creel census, 7th and 8th November 1987.
4. Electric fishing projects:—
   - (a) Survey Slovens Creek above and below the falls, in selected places for salmon and trout fry and fingerlings, to find out what is present, and if salmon had negotiated the falls — 2 days in November.
   - (b) Investigate irrigation raceways for presence of fish, as considered necessary — March, August to November.
   - (c) Survey High Peak and Snowdon streams (Ford, Bush, Jackson, others) — October to December.
   - (d) Electric fish Kaituna River to record fish species present and numbers.
5. Slovens Falls programme: continue with efforts to get fish over the falls using manpower.
6. Investigate the Lake Hawdon by-pass channel to see if it can be used as a means of enhancing the salmon run.
7. Fish salvage (when required):—
   - (a) Hororata-Selwyn: fish to be transferred upstream in the Hororata, some to the White cliffs area (Selwyn) and, if possible, a number into Lake Sarah;
   - (b) Ashley-Hurunui-Waiau-Rakaia Rivers: all fish to be released back into the catchment from which they were salvaged;

(c) Various irrigation raceways, as required and depending on season; all fish to be released into the nearest catchment from which they were salvaged;

(d) Craigieburn Stream-Winding Creek: fish salvage check as required — fish to be released into system.

(e) Harper Gates: for rainbow trout (above 200 fish) if needed, putting one load into Lake Selfe and the rest above the gates.

8. (a) Continue normal ranging duties as per the Act and Regulations.

   (b) Co-ordinate licence checks in Waimakariri and Rakaia Rivers (in conjunction with Ashburton Society) — January to April.

9. Trap the lower Selwyn River during May to August to record spawning migration and seasonal spawning potential and success.

10. Fish stocking programme:—

    (a) Electric fish raceways in the Selwyn and Ellesmere catchments, as required, and transfer fish to the heavily fished waters of Ellesmere and Christchurch with the aim of ameliorating the effects of fish loss, over-fishing, drought, and environmental degradation.

    (b) Electric fish the Waimakariri River waterways, as required, for fish release into the Cam-Kaiapoi river system, to compensate for pollution kills.

    (c) Continue stream implantation of eyed rainbow and brown trout ova, with the fish source being the North Island, and the locations to be decided annually by the Chairman reporting to the Fish Committee after consultation with interested parties.

    (d) Continue stream implantations of eyed salmon ova, if available, from MAF stocks, with the locations being the South Branch-Grasmere-Low Farm-Cass Hill Streams, Kowai River tributaries.

    (e) Investigation by Chairman to be made, and if possible, action to be taken, towards our becoming self-sufficient in the obtaining of eyed trout ova locally, for implanting in areas of need, to overcome the hold-ups we have experienced, so that sound long-term planning can be done. Should investigations prove the feasibility of the above, determination of numbers is to be made by the Chairman reporting to the Fish Committee before action is taken.

(b) **General Programme:**

1. Lake Coleridge stream assessment reports on Coleridge Stream and Acheron River potential.
2. Continue monitoring of tag recoveries, pollution, liberations, fish numbers, as required.
3. Annual check of gorse clearance of Twin Creek, Scamander, Ryton, Lake Monck inlet stream.
4. Lake Grasmere stream: continue discussions with relevant groups and people, for the realignment and diversion of stream into Lake Sarah, and apply for water rights.
5. Continue with maintenance of Hydra waters, Cora Lynn fencing; and Cass Hill, Manuka Point, Grasmere, Hennah, Lakes Sheppard and Taylor outlet, streams, when required.

6. Work schemes and surveys:—
   (a) Electric fish selected parts of the upper Ashley River to find out species present and relative numbers (2 days only).
   (b) Investigate Lake Georgina inlet stream and make an approach to the run-holder and County concerning fencing and enhancement.
7. Lake Letitia splake release, March or April 1987; if possible monitor fish release, plus protect fish by 2-year closure period.
8. Carry out a salmon spawning survey of the South Branch, Waimakariri River.

(B) FISH SALVAGE

The following reports pertain to fish salvage carried out during the year.

1. Lake Lyndon Inlet Stream Salvage (by F/O R. T. Novis)

The inlet stream which flows from the vicinity of Porters Pass into Lake Lyndon was visited a number of times during November 1986 to January 1987 for salvage. This stream has stopped flowing into the lake and had dried back several hundred metres. Attempts to catch the trout that were stranded in the stream were undertaken by using nets and electric fishing. Adults, or trout which were possibly yearlings and older were removed from the stream by the electric fishing machine. This method was not successful in catching the fry. Adults were returned to Lake Lyndon — these totalled approximately 50 — they were up to 30cm in length. After attempting to net the fry with the NCAS salvage nets, and finding that they were so small that they went through the mesh, I used wire gauze strainers (similar to household strainers) and this method of catching the fry was quite successful, although very time consuming. All the trout were rainbow, no eels were seen.

The following are the approximate numbers of trout removed from the inlet stream (prior to 21/11/86, 50 adult R.B. trout were removed from the inlet stream and returned to Lake Lyndon):—

—21/11/86: 266 small R.B. trout plus 3 fry to Lake Ida. (This was the result of electric fishing by D. Maindonald, A. Ross, B. Ross, R. Novis — 50 R.B. trout fry from the Lyndon **outlet** stream went with this lot).

—13/12/86: 600 R.B. trout fry to Lake Ida (R. Novis, L. Ashby).

—19/12/86: 600 R.B. trout fry to Lake Ida. (R. Novis).

—29/12/86: 500 R.B. trout fry carried around to Little Lake Ida in plastic bags. (R. Novis, V. Novis).

—13/ 1/87: 30 R.B. trout fry to Lake Lyndon (R. Novis, L. Ashby).

—13/ 1/87: Still fry in stream but they were difficult to catch and they could be injured in trying to net.

The trout in this stream were small and I think some of the small trout would mature, as if they had adapted themselves to live in the small stream. It may be of interest to see what sized R.B. trout are taken out of Lake Ida in the following few seasons.

2. Hororata River — Salvage of Brown Trout (by F/O D. R. Maindonald)

Period: January 12 to February 27 1987 (but not continuous).

Locality: Reese Camp upstream to Mitchells Road — a distance of approx. 5km. Greendale district.

Total fish saved: 242 adult, 429 two-year-olds, 2318 fingerlings.

Condition of adults and two-year-olds: Above average to very good.

Method of capture: Drag-nets and electric fishing machine.

Release sites: Coes Ford, Doody Ford and Whitecliffs (Selwyn River), Rockwood and Hartnells Road (Hororata River) and the Bealey Stream. In addition one load was taken up to Lake Sarah comprising of 35 adults, 38 two-year-olds and 80 selected fingerlings.

N.C.A.S. field staff would like to thank the following for their much appreciated assistance during the salvage: Frank Ridgen, Trevor Washbourne, Andy Ross, Murray Christie, Gorden Cullen, Graeme Knowles and Nelson, Steven and Eric Early.

3. Salvage from Irrigation Raceways (by F/O R. T. Novis)

Mr P. Barnes and myself salvaged fish from the raceways of the Waiau River irrigation scheme over 3-4 June 1987. The water was discoloured. The intake of the irrigation scheme was turned off so that the annual maintenance could be carried out on the raceways and silt could be removed from the settling pond and from where it had built up behind the dam boards. The salvage was made by using drag nets and this was mainly carried out at the "drops" or where the water was left in deep pools. The use of nets was not completely satisfactory owing to the raceways having large boulders on the bed, also where there were cavities fish could have been in them, out of reach of a net.

The following fish were netted and returned to the Waiau River above the Leslie Hills bridge:—

— From raceway in Tomlinsons property = 1 B.T. adult, 29 B.T. yearlings, 8 Quinnat salmon from last year's spawning.

— From raceways in P. Gallaghers = 2 B.T. yearlings.

— From M. Roberts = 1 B.T. adult, 15 B.T. yearlings, 1 Q.S. juvenile.

The above raceways were lateral No. 2.

— From M. Farquhar property, lateral 3A = 4 yearling B.T., 2 Q.S. juveniles.

No other fish were salvaged although all the raceways that were considered could have had fish in, were checked. We were indebted to Mr A. Harradine of Culverden for information re the raceways and access along them; he is closely connected with the whole irrigation system. In his opinion there were not the numbers of fish present this year as were in the past.

At the intake of the irrigation scheme a number of adult Quinnat salmon were present. These salmon are lost to the angler and they would not successfully spawn. This is owing to their being trapped in the raceway, where the water is too deep to get into to net them — they cannot return upstream as the gate is shut down and the raceway below them is dry. There appears to be no simple way to rectify this matter. There were only a few (possibly under 10) trapped this season. I was told the number exceeded 100 last season. The position of the "fish exit" from the settling pond, at the beginning of the irrigation scheme was noted to be too high; fish would have to jump out of the water to enter them, when the pond is emptied.

The total numbers salvaged from Waiau irrigation raceway:—

— 2 adult Brown trout

— 50 Brown trout yearlings

— 11 Quinnat salmon juveniles.

A more successful salvage would possibly have been made if the electric fishing machine had been used.

Whilst in the Culverden area we visited the following streams:—

Dry Stream 4/6/87

Dry Stream had not been flowing right through for about 2 weeks. The lower part of the stream had "holes" of water. We checked the stream bed for stranded fish in the area adjoining the main Culverden Road. An adult spawned salmon was found a few hundred metres upstream from the road by Mr P. Barnes. We checked the upper part of Dry Stream but found the water was too discoloured to see fish or redds.

School Creek 4/6/87

See survey below made by Mr P. Barnes; Report on numbers of salmon redds.

Waitohi River 5/6/87

Water found to be too high and dirty.

The assistance given by Mr P. Barnes, in netting of the raceways and his knowledge of the area that he made available to me was greatly appreciated.

(C) MAIN PROGRAMME

1. **Trout Spawning Counts Upper Waimakariri — September 1986 (By F/O R. T. Novis)**

	Redds	**Fish**
Spring Creek 23/9/86	7 Redds	2 R.b.T.
Dry Creek (Spring Creek water)	7 Redds	2 R.b.T.
Porter River from Dry Creek to Highway Bridge	3 Redds	2 R.b.T.
(fry noticeable in Spring Creek)		
Cora Lynn Stream 23/9/86	8 Redds	3 R.b.T.
Turkey Flat 23/9/86	2 Redds	Nil
Bealey Roadside 23/9/86	Nil	Nil
Low Farm Creek 23/9/86 (fry noticeable)	3 Redds	1 R.b.T.
Cass Hill Stream 24/9/86		
Above gate) shoals of fry	3 Redds	2 b.T. 1 R.b.T.
Below gate) —	3 Redds	2 b.T.
Slovens Creek 24/9/86	14 Redds	3 R.b.T.
Winding Creek 24/9/86		
Above Flockhill Lane (usual Q.S. count)	22 Redds	5 trout
Below Flockhill Lane (fry noticeable)	5 Redds	2 R.b.T.
Grasmere Stream 25/9/86	1 Redd	3 trout
One Tree Swamp 25/9/86	7 Redds	1 trout
South end Lake Pearson 24/9/86	10 Redds	3 R.b.T.
North end Lake Pearson 24/9/86	2 Redds	2 dead R.b.T.
Lake Sarah inlet 24/9/86 below penstock	Nil	Nil
Lake Sarah inlet above penstock	5 Redds	6 R.b.T.

The upper Waimakariri redd counts were carried out by B. Ross and R. Novis in good weather conditions with the streams clear. Fry which would most certainly be salmon were noticeable in large shoals throughout Cass Hill Stream. The trout seen appeared to be mainly rainbow trout, but sometimes, owing to the water turbulence or depth I could not be absolutely certain. It was disappointing to find the inlet stream below the penstock at Lake Sarah with no redds of trout in it. The shingle in that stream has a lot of silt in it. Last season over 50 places where trout had spawned or tried to spawn were noted. Above the penstock about the previous year's numbers of trout and redds were found again this season.

The stream flowing into Lake Lyndon from Porters Pass held about 80 redds and this would require salvage if Lake Lyndon drops before the juvenile trout can get down to the lake. This would be an opportunity to get a supply of young trout for stocking other waters.

Footnote: The Lake Lyndon inlet stream was subsequently salvaged. See Report above — trout put into Lake Ida (M. E. Snowdon).

2. Report on Rainbow Trout Spawning Survey Harper River Catchment October 14th & 18th 1986 (by F/O B. J. Ross)

1. Introduction

A survey was undertaken of the main spawning streams of the Harper River to determine if appreciable numbers of Rainbow trout (**Salmo gairdneri**) from Lake Coleridge, had negotiated the N.Z. Electricity Harper gates, and spawned this season. Fish observed below the gates in recent months had never accumulated to any great extent, so it was assumed therefore, that these fish must be negotiating the gates. The fish-pass situation was improved greatly this year by the N.Z.E. who placed two very large boulders immediately downstream of the gates. These appear to have raised the water level and also slowed down the velocity of the water below the gates. This would mean that upstream spawning fish had a better chance of getting over the gates. If they did not succeed on their first attempt, they could recover their strength much more quickly in the relatively calm water downstream of the gates, and try again.

2. Areas Surveyed

(a) **Long Plank Creek**

This drains from the large swampy and snowgrass area between the Redoubt and the foot of Mt Ida on the true left bank of the Harper River. Its confluence this year, with the Harper River, was at the same point as it was last year, i.e. about 1km downstream from the swamp near the two waterfalls and rocky outcrop. The redds were observed mainly near the top end of the creek. There appeared to be room for more spawning in the creek, as much excellent gravel was unused: Redds — 59; Rainbow trout — 27.

(b) **Gargarus Creek**

Called this, because it flows from springs at the foot of Gargarus Hill. It enters the Harper River on the true right bank. Although quite small in water volume, the gravel quality and quantity are both excellent. The creek has an idyllic location, nestled in its native bush setting: Redds — 16; Rainbow trout — 2.

(c) **Lilian Stream**

Waters from the outlet of Lake Lilian and from a swampy area near the Forestry Camp join to form the stream which enters on the true right bank of the Harper River. There was a reasonable full flow down the stream. Also, like Long Plank Creek there is room for more spawning activity here, as much of the stream appears under-utilised: Redds — 60; Rainbow trout — 21.

(d) **Corner Creek**

Aptly named, this creek flows from the large swamp near the confluence of the Harper and Avoca Rivers. Although it is not very long in length it contains some excellent gravel and a good flow of water: Redds — 25; Rainbow trout — 5.

(e) **Other Areas**

Main stream spawning in the Harper and Avoca Rivers is thought likely to occur, however both rivers were slightly high and discoloured, so no observations could be made. These two rivers have been subjected to a reasonable amount of flooding this season, so it would seem unlikely that any spawning here would have been successfully completed.

Glenthorne Swamp, usually surveyed for salmon spawning, was looked at to see if any trout spawning had occurred there this season. Seepage from the Wilberforce diversion and water from the large swamp at the foot of Castle Hill, flow into the Wilberforce River on the true left bank. The flow in the stream was found to be low compared to what it was during the salmon spawning season. This was probably because much of the seepage from the diversion had been blocked. Redds — 3; Rainbow trout — 0.

3. Summary

From the observations made during the surveys, it would appear that Rainbow trout from Lake Coleridge did indeed overcome the barrier to their upstream spawning migration this season. From a fisheries management point of view this is encouraging as the number of ova from the 160 redds seen should enhance the Rainbow trout population in Lake Coleridge, thus benefiting the angler.

3. Quinnat Salmon Surveys of the Waimakariri River, 1987 (by F/O R. T. Novis)

The number of Quinnat salmon using the spawning streams of the Waimakariri this season, appeared to be about the same as some of the previous seasons. Many salmon fishermen told me they considered the salmon run was very low, when I spoke to them during the fishing season, so that I felt I should be apologising for the numbers that I counted. I did not expect to see so many salmon during the survey, because I had seen very few taken when I was checking licences during the fishing season.

A late run on to some of the spawning streams seems to have come about this season. The number of redds that I normally see on my last count of spawning areas, is usually **down** on the previous count, as the redds that are made at the start of the season have flattened out, and a lot have blended into the bed of the stream, being covered by algae and debris. This season, the last count showed **more** redds in some of the streams than the previous count. The reason for this I do not know. I did not see many salmon during the last count. There had very recently been a flood over the spawning areas which could have swept away any dying salmon or carcasses. The salmon were a reasonable size this season. No very big ones and no numbers of small ones were seen; their condition was about average. The streams looked good, especially Cass Hill stream, which looked really impressive on my July visit. It still attracts salmon poachers which is a pity; we may meet one day I hope.

For my accommodation at Cass, where I stay during my surveys, I must again thank the members of the University of Canterbury who make this possible. I would also like to thank the following people for their assistance in collecting otoliths, which are taken from some very unpleasant smelling salmon carcasses (about 260 sets collected this season): Dr G. Glova, Messrs M. Flain, R. T. Hutchinson, L. Ashby and J. Coffey. I again appreciated the way that Garden City Helicopters worked in to help me at such short notice; also the rangers at Arthurs Pass National Park for allowing the helicopter to land in the Park.

1. Cora Lynn Stream

I do not know what happened at Cora Lynn. Usually the number of redds decline by the time of the last count; this season they went up. The spawning was different from the recent seasons; more salmon visited the upper section of the stream, while the areas that in past years had been spawned over around some of the rapids, did not get used the same. The water in the stream appeared to be about the same height as other years, but it may have been just a little bit higher that made the difference for the salmon.

The stream looked good this season — it has regrowth along the banks where previously they had been affected by cattle. No cattle were seen in the area during this season, which was fortunate as the power has not been connected to the fence line around the stream (due for connection early spring). A notice was placed at Cora Lynn Stream last year asking people to keep out. It was very pleasing to see that most people respected this request — may be the reason for the salmon using the top part of the stream more this season? When the fence around the spawning area is electrified, improvements to these areas could be considered. This may include stopping the growth of willows and loosening the gravels, plus possibly, confining the upper waters to one stream. The fence mentioned here is the one constructed by the Society and volunteers to protect Cora Lynn Stream.

2. One Tree Swamp

One Tree Swamp streams had a good entrance from the Waimakariri River for all of the salmon run. Spawning took place to the top of the true left branch, and 10 redds were made in the true right. The large heaps of shingle, caused by repeating spawning in the true left, were again spawned over this season. Some spawning must be lost here as more than one redd would be made in the same place. I have given this problem quite a lot of thought:— I am now of the opinion that the heaps of shingle should be left as they are. If they are levelled off I think that the water flow would be altered and possibly unsuitable for spawning, as well. The shingle could be washed into some of the larger holes in the stream bed and lost for spawning. Silting of the lower part of the left branch may become a problem in future seasons. I am sure there is more on the stream bed than I remember years ago. One Tree Swamp streams are formed by drainage from a large swamp and underground water seepage; cattle are found in and around the streams on most visits — they may be part of the silt problem. Fencing of the streams or just the upper parts of them may be considered in the future. There is no supply of electricity for electrifying a fence line close by. The property is farmed by Mt White Station; it is not in the National Park.

3. Spring Creek

The access to Spring Creek is limited, owing to the water flow down the Dry Stream bed to the Porter River. It would seem that only small numbers of salmon will use this spawning stream. If a good run does come about spawning areas should be available. Rainbow trout eyed ova has been planted in Spring Creek; this should help the fisheries in the Broken River system.

4. Turkey Flat

The waters of Turkey Flat streams arise from seepage out of the shingle from under the large tussock flat. They look as though they would be free from flooding. Just previous to my visit in July 1987 there had been a great volume of water down the streams and over the flats surrounding them; the main stream would have risen more than 50cm. These are conditions that take away any dead or dying salmon and level off newly made redds. After a day or so it would be difficult to see where the higher water had been and the streams would have become clear. The upper areas of the Turkey Flat streams have shingles too consolidated for spawning. However, being in the Arthurs Pass National Park it could not be altered. Plenty of good spawning shingle is to be found downstream and this is not all used by salmon.

5. Grasmere Stream

Two days were spent clearing fallen willows and debris from Grasmere Stream prior to salmon coming into the area this season. There is still some clearing required immediately below where the railway crosses the stream, although salmon may still pass through this area. Salmon spawned throughout the stream from Cass Village down to the Cass River. On the 7/7/87 there were 49 salmon redds and nearly half of them had been made in the by-pass section where the stream had been diverted from the willows some years ago. At the height of the salmon run, the N.Z. Railways were seen to start diverting the main stream of the Waimakariri River away from the mouth of the Cass River, so that flood protection works could be carried out on the rail embankment. If this work in diverting the river had been carried out at that time, salmon would not have been able to gain access to Grasmere Stream, and juvenile salmon may have been lost trying to reach the Waimakariri River. Many thanks to N.Z.R., for the diversion was not completed as it was first planned. Cattle were in and around the stream at the start of my surveys, and I was concerned the area where they were, would be damaged, as it was a few seasons ago. Their stay however in the area was short, thank goodness. No redds were seen in the Cass River; there may have been some made, but the swift water and clean stream bed made it difficult to define any.

6. Cass Hill Stream

As in the previous seasons the waters of Cass Hill Stream flowed for a number of kilometres before entering the main stream of the Waimakariri River. The final entry to the main stream was not good, but a good number of Quinnat salmon still found it. Spawning took place along the entire length of stream, with the majority of redds being made in the upper sections. This stream looked very good at the end of the spawning season. The redds were all made in good sized, clean shingle; there was also a reasonable water flow over the full length of the area of spawning. The stream banks have developed a good covering of gorse etc., and this covers the waters edge, offering the fish protection. Juvenile salmon were very noticeable in Cass Hill Stream during my first surveys; they were not to be seen at the final visits. Half a million eyed Quinnat salmon ova was planted in Cass Hill Stream this season; they were hatching out on 10/7/87. The access track down to Cass Hill Stream has been badly affected by someone with a large machine; unless some other works is carried out on it, access down it by vehicle may be stopped.

7. Slovens Creek

No sign that salmon had reached upstream from the falls were found this season. Locating the redds or retrieving dead salmon from the area between the falls and Broken River is difficult owing to floods, and the water of the stream being discoloured. (Floods over 2 metres high appear to go down the lower gorge area). I had reports of fair numbers of salmon being seen in the stream but I did not see them. I did find buried salmon guts etc. This is an out-of-the-way area: salmon are poached each season. So far time has not allowed enough ranging to be carried out, to prevent it.

8. Bealey Roadside

As I have mentioned over the previous seasons, this stretch of water has very limited spawning taking place in it. It is worth checking each year because if salmon do not make it to Turkey Flat Stream they could use the Bealey roadside. I do not see that any improvements could be carried out; also it is in Arthurs Pass National Park.

9. Winding Creek

Winding Creek had an average flow of water this spawning season. The reason for this being Lake Pearson was high and entered the creek. A small stream at the foot of Broken Hill, had a good flow going down it. That stream is often dry. Salmon redds were found close by Lake Pearson inlet; they could have entered the lake. This area requires checking in the next months as it may dry back and need salvaging. Counts of redds and fish in Winding Creek were made difficult by the extra water, and by being slightly discoloured. At the end of the spawning season, the redds that had been made early in the season were hard to define, as some had been levelled off. There was also algae over the stones of the stream bed. The redds made in the short length of stream, close by Broken Hill, may be lost as this water will possibly dry up with frosts. There were more than 10 redds there.

10. Low Farm Creek

There was not a good lead in from the Waimakariri River to Low Farm Creek this season. This, in my opinion, has a lot to do with the low numbers of salmon that enter the stream. Even if there was a good entrance at the start of the season; after a flood, the entrance can be changed completely. The stream does not carry much water, and this should enter the main flow of the Waimakariri as soon as possible for best salmon returns. Sometimes the water of the stream has gone over many hundreds of metres of river bed, and had small flows of Waimakariri water mixing with it, before the main stream was met. To rectify this matter, machinery would have to be used, and possibly more than once over the season. Cattle are in and around this stream on most visits. If salmon do use this stream in reasonable numbers, possibly the fencing off, of spawning areas, may be worthwhile. The area is farmed by Mt White Station.

11. Poulter Spawning Streams

Two visits were made to the upper Poulter spawning streams during the salmon spawning season this year. They were not on the dates that we had hoped to make the counts, but the visits were influenced by the bad weather conditions that were experienced in the mountains. The last count was made 2/7/87 and was after fairly severe flooding had taken place down the streams. An area that had been spawned over in the true left stream just above the confluence with the Poulter River, showed no redds, although it was one of the most spawned over parts of the stream on the first visit, 25/5/87. Needless to say, most of the salmon carcasses had also disappeared with the flooded waters. Flooding had not affected the upper parts of the spawning streams, other than removing carcasses and salmon which had spawned. No redds or salmon were seen in the Poulter River.

4. Lake Marymere

F/O R. Novis made a count of the spawning trout in Lake Marymere, on the 18/6/87. Weather conditions were not ideal but calm enough for sighting the majority of the trout which were spawning on or about the spawning areas. The trout seen were of a good size and considered to be mature spawning fish; number of trout seen = 43; light south-west wind and overcast sky. A number of areas of shingle that had been disturbed on the lake bed were seen. F/O Novis walked out in the water to one of them; and found it was similar to a shallow trench and about 1 metre in length and a few centimetres deep. No definite redds seen.

5. Lake Sarah Inlet Stream

F/O Novis visited this stream on 9/7/87 and saw 4 redds and one Brown trout.

TABLE 1 — 1987 QUINNAT SALMON SPAWNING SURVEY, UPPER WAIMAKARIRI RIVER SYSTEM.

Location	Date	Live Salmon	Single Redds	Multi Redds	Dead Salmon	Trout	Remarks
Grasmere Stream	16/4/87	12	17	0	0	0	30 cattle around stream.
	14/5/87	17	54	0	12	0	Redds up to Cass Village.
	19/6/87	7	32	0	3	B.T. 2	
	7/7/87	2	49	0	3	0	
Cass Hill Stream (above gate)	14/4/87	45	55	1	1	0	Juvenile salmon plentiful.
	15/5/87	32	158	5	7	2	Spawning right through stream.
	20/6/87	6	208	0	6	2	Stream looks good, good spawning,
	10/7/87	0	175	0	9	0	good shingle, good water flow.
Cass Hill Stream (below gate)	17/4/87	27	41	0	0	1	
	13/5/87	24	59	0	1	0	Spawning over approx. 2km.
	20/6/87	0	61	0	2	1	
	10/7/87	1	86	0	2	1	
One Tree Swamp	15/4/87	8	16	1	0	0	True right has 1 redd, 0 fish.
	13/5/87	21	31	4	6	0	True right has 6 redds, 1 multi, 1 Q.S.
	18/6/87	25	28	0	2	0	Plus 12 heaps of shingle across stream.
	9/7/87	0	49	0	11	0	True right has 11 redds, 0 fish.
Slovens Creek	14/4/87	0	2	0	0	0	
	15/5/87	6	6	0	2	0	
	18/6/87	Too much water and too discoloured.					
	8/7/87	0	2	0	0	0	
Poulter Streams	25/5/87	317	415	0	144	0	
	2 /7/87	14	345	0	177	0	Recent "fresh" has been down streams.

Cora Lynn Stream	13/4/87	12	48	1	0		0	Waimak. River flowing through, Q.S.
	12/5/87	46	110	1	3		0	could pass above Cora Lynn.
	18/6/87	27	108	1	3		1	Spawning full length of stream.
	7/7/87	3	148	0	2		0	Area of shingle 3m x 3m also spawned over.
Winding Creek	14/4/87	12	25	0	0		0	Flowing from Lake Pearson.
	14/5/87	73	95	2	2	B.T.	1	Flowing fast.
	18/6/87	Water too high and discoloured.						
	8/7/87	7	119	2	3	Rb.T.	1	Water height 25cm.
Low Farm Creek	15/4/87	0	2	0	0		0	
	13/5/87	4	8	0	1		0	Poor lead-in from Waimak.
	17/6/87	0	8	0	2		0	Cattle around all visits.
	9/7/87	0	16	0	2		0	
Spring Creek	18/5/87	1	3	0	2		0	
	17/6/87	1	4	0	0		0	
	7/7/87	0	4	0	0		0	
Turkey Flat	16/4/87	0	0	0	0		0	
	15/5/87	6	10	0	0		0	Many trial redds.
	9/7/87	0	8	0	0		0	Five small redds possible trout.
Bealey Roadside	16/4/87	0	0	0	0		0	Very little water.
	15/5/87	0	0	0	0		0	
	9/7/87	0	0	0	0		0	

He considered it a pity that the stream could not be altered to improve spawning for the trout of Lake Sarah, as suggested in past reports about this area.

Footnote: The Society has arranged with the North Canterbury Catchment Board, that the N.C.C.B. will establish suitable levels for a re-alignment of the stream. At the present time there are certain aspects of ownership to be established. (M. E. Snowdon).

6. Lake Pearson, Roadside Stream

On the 18/7/87 this small stream had the shingle bed disturbed by spawning fish in many places. There were no fish present.

7. 1987 Quinnat Salmon Spawning Survey — Lake Coleridge (by F/O B. J. Ross — abridged).

Introduction

As per the Society's 1987 Fish Priorities No. (A)2, a spawning survey and carcass recovery programme was undertaken of the main Q.S. spawning streams at Lake Coleridge — May 28th-29th 1987. The survey is a continuation of work undertaken during the past 3 years, including the release of 10,000 tagged Q.S. smolts into the Hennah Stream in 1984. However, unlike the past two seasons, it was decided that I would not be required to install any trap or barriers as part of the survey.

Survey Results

Set out below are the results of the 1987 survey, with previous years figures included for comparison and information. Although not officially part of the survey, observations of Brown trout spawning are also included as they were present in the spawning streams at the time of the survey. (* possible salmon redds; + possible Brown trout redds; 0 nothing observed; — not surveyed):—

Spawning	**Live Q.S.**			**Dead Q.S.**			**Q.S. Redds**			**Brown Trout**			**B.T. Redds**		
Season	**87**	**86**	**85**	**87**	**86**	**85**	**87**	**86**	**85**	**87**	**86**	**85**	**87**	**86**	**85**
Location															
Hennah Stream	174	65	10	21	28	—	185	164	93	13	18	—	8	0	—
Twin Creeks (below road)	45	23	100	3	1	—	41	22	109	27	11	—	8	0	—
Twin Creeks ("right" branch)	6	0	—	0	0	—	18	1	—	11	0	—	8	0	—
Twin Creeks ("left" branch)	5	1	—	0	0	—	9	6	—	3	1	—	1	0	—
Lake Monck Stream	0	0	0	0	0	0	8*	6*	0	0	0	0	0	0	0
Monckburn	0	0	0	0	0	0	—	0	0	12	3	0	+24	+5	+34
Scamander Stream	23	—	—	1	—	—	19	—	—	13	—	—	4	—	—
Ryton River	8	0	—	1	0	—	13	0	—	51	0	—	60	0	0

Carcass Recovery Data:—

Location	Otolith Samples Collected 1987	1986
Hennah Stream	22	387
Ryton River	14	29
Twin Creeks	3	9
Scamander Stream	1	0
TOTAL	40	511

Average Lengths. (Excludes 3 carcasses — sex not determined):—
males = 22; average standard length 397mm; % of total 59.4. female = 15; average standard length 412; % of total 40.5. No adipose fin clipped salmon found.

Summary of Results

As can be seen from the data there was a reasonable good run of salmon into the major spawning streams flowing into Lake Coleridge this season. Increases in both live salmon and their redds were observed in all areas surveyed, when compared with the previous year's spawning survey figures, done at the same time of the year (May 1986). It also was noted that Brown trout were in relative abundance in the spawning streams along with the salmon this year. This made it more difficult to accurately identify salmon-only redds. However, the fact that the Brown trout were usually on or nearby their redds, (being the later of the two species to spawn) lessened the risk of confusing the origin of the redd. Brown trout figures were therefore included to complete the picture. The number of otolith samples collected this season was low. Otolith samples were collected from **all** dead and a few dying salmon seen. Only a limited number of salmon at any given time in a stream are going to be in a state whereby data can be obtained from them i.e. either dead or dying. A survey of Scamander Stream was undertaken this season, after several salmon were observed in the area immediately upstream of the culvert under the road. It was previously thought that very few salmon use the Scamander Stream for spawning purposes; however this would not appear to be the case this season. Most redds were seen downstream of the road. The upstream section is mostly overgrown with native vegetation e.g. matagouri etc. and this makes observations here extremely difficult. Another limiting factor as far as observations were concerned was the generally bad weather conditions experienced throughout the survey period — overcast skies, strong nor-westerly winds and some rain (about 25mm).

8. **Mixed Redd Count 1986, Lake Coleridge System**

The annual Lake Coleridge mixed redd count was carried out on 19/9/86, organized and supervised by F/O Maindonald. Below is his summary.

Ryton River (from Lake Coleridge to Lake Monck Ford)	150
Goldney River	30
Monck Burn	64
Lake Monck outlet stream	50
Ida Burn	29
Hennah Stream	140
Total for Ryton system	463
Twin Creeks	102
Scamander Stream	28*
Lake Georgina inlet stream	20
Lake Georgina outlet stream	43
Lake Selfe outlet stream	18
Grand Total	674

Weather — overcast. No Wind.
Stream conditions. Clear, but above normal. Freshes may have obliterated some redds.
Present on survey — Messrs R. Knowles, A. Ross, P. Hendry, W. McKillop, J. Dallard, G. Gumm, B. Ross, L. Piper and D. Maindonald.

*A recent high flood had deposited large banks of gravel and caused changes in the direction of the stream bed below the road. No redds found in this section.

9. Harts Creek Spawning Survey — July-August 1986 (by F/O H. L. Piper)

Harts Creek which flows into Lake Ellesmere on the north side of Lakeside Domain carries a good flow of water for most of its length. It starts from a spring just east of the Southbridge-Leeston road and picks up water from springs for some distance, the only significant stream flowing into it being Birdling Brook which flows into Harts Creek about 3267 metres above the mouth.

The first 1457 metres up from the mouth is deep and slow moving with a mud bottom. Quite a lot of fishing is done in this area. The next 310 metres is mostly shingle bottom, wider and faster flowing with a few deep holes. Five trout and three redds were seen in this strip to the first bridge. From the first bridge, to the bridge on Lake road it is overgrown with trees and hard to get at — it is too deep in most places and about 200 metres in length. To the third bridge water is slow and deeper — the start of deep natural banks and abundant water-weed with natural springs in creek bed, no significant shingle areas (about 900 metres in this strip). To the fourth bridge is about 800 metres, the same as last area; Birdling Creek flows into Harts Creek in this strip. To the fifth road crossing there is about 1000 metres of deep, slow moving water, lots of weed and natural springs. Nearer to the fifth crossing on Clarks Road in Chamberlains property; there were two patches of shingle in deep but fast flowing water — one of 182 metres with 8 redds, and another strip of 274 metres nearer Clarks Road, with 10 visible redds.

From the Clarks Road crossing to some big trees in Leggs property is 1188 metres, winding and full of willow trees. There are a few patches of shingle in the first 300 metres, but would be prone to silting, because of trees and weed slowing the water down. In this strip there is a small weir by an old broken down house, about 300 metres up from the bridge but fish can negotiate it. From the big trees in Leggs to the source in Wards property on Hills Road, it winds for 1600 metres, slow moving, with willow, flax and weed holding the silt which makes it unsuitable for spawning.

Birdling Brook

Birdling Brook, which is also fed from springs in the lower region, would also take some drainage run off, as quite a few ditches run into it above the Leeston township. From the mouth at Harts Creek to the first road crossing is mud bottom and unsuitable for spawning. The first side stream coming in from the left (205 metres upstream from road), I followed until the shingle bottom ran out. This stream starts from a spring in the middle of a paddock on Locheads property. Of the 1234 metres in lower part, about 3/4 is shingle bottom — eleven redds were seen, and several spawning fish, also a lot of yearling trout.

From the junction of side stream it is 228 metres to the start of shingle in Birdlings Brook; from there on, there is shingle in varying quantities, some stretches of shingle look O.K. but no redds seen — the shingle may be too shallow on a clay base.

It is about 1828 metres from the start of shingle to Beethams Road; in this area a few trout were seen and 33 redds counted, also a lot of tins and bottles in the creek for a considerable distance below the first house from Beethams Road. From Beethams Road to the junction behind Leeston at a cow yard, the creek winds through paddocks with some deep holes and stretches of shingle in between. In this area I counted 41 redds.

From the junction at cow bail behind Leeston to the Leeston-Southbridge roundabout is about 492 metres with shingle in varying quantities over most of the bed. Because of two very high floods recently any redds would have been flattened. On the north side of the road two ditches came together — one appears to be a drainage ditch which runs along the Leeston-Rakaia road to Prossers Road, and then up Prossers Road with several drainage ditches running into it from paddocks. There are a few patches of shingle but really too much clay and silt to be of any use.

The other smaller branch again appears to be a drainage ditch and would be prone to silting; also, during the dry seasons it would be dry as there was not a lot of water in it and we have just had one of our biggest floods for a number of years.

Nairn's Drain, which flows into the lagoon just east of Harts Creek, I checked also after the floods, and there was quite a good flow of water between the lake and Lake road, most of which is deep and slow moving. The distance between here is 745 metres with only 3 very small areas of shingle which could be utilized for spawning; most of the water was coming in from a ditch which runs along Lake road. The other ditch runs across paddocks to the Leeston-Lakeside road and from there had only a trickle coming in from a road ditch. This drain appears to be a drainage ditch mainly for surface water and would not be important as a spawning area, as I would say the road would dry up in a normal year.

10. The Spawning Potential of the Kaituna River (by F/O D. R. Maindonald)

The source of this stream is on the south slopes of Herbert Peak (927m); however, four of the main tributaries also feed from the south eastern side of Mt Herbert (863m) and the Pack-horse ridge country. The Okana stream is the main feeder on the opposite side of the valley (true left). Altogether the L.S.M. shows fifteen tributaries.

The Kaituna Valley is approx. 12.5km long and 5.5km at its widest ridge to ridge measurement, it is very picturesque, and the upper reaches of the river with its native bush, is popular with trampers and sightseers.

Because of its catchment shape, and lying as it does open to the south west, the river is subject to rapid water level rises (over 2m sometimes) in times of heavy rainfall. This, combined with the varying incline of the valley floor on its way to becoming part of the shoreline at Lake Ellesmere, has dictated only one section of about 2.5km as suitable for redd digging (see Fig. 2). This area starts at the Kaituna homestead bridge and stops in the vicinity of the Okana stream confluence. Initially the gravel stream bed is continuous, but soon develops into shingle bars and pools, some of which are quite deep. It was noticed during the several surveys made in connection with this report, that after flooding, the shingle shoulders altered or disappeared altogether, and that deep pools became shallow or vice versa, indicating bad news for any trout redds already completed.

Local residents said they used to see trout in the river right up to the end of the road, but not any more. No fish were observed by me above Kaituna homestead during the spawning season this year (12/9/86). Upstream of the homestead there is a noticeable increase in the rate of ascent and the river stones start becoming small boulders. It was noted, that on one bend in the river, spawning sized gravel had been cast up on the outside of the curve, although there was none to be seen upstream of this place, or downstream of it, for some considerable distance. It appears to be a deposit formed by many years of flood waters.

Figure 1 has an exaggerated vertical scale (with approx. true scale as dotted line) used in the descriptive drawing of Fig. 2.

Throughout the spawning section, the gravel size remains fairly constant i.e., 4-6cm, a little on the small side, but it is mainly clean and silt free, although this may not be the case if a long period without a flood occurred prior to a run.

Fig. 1

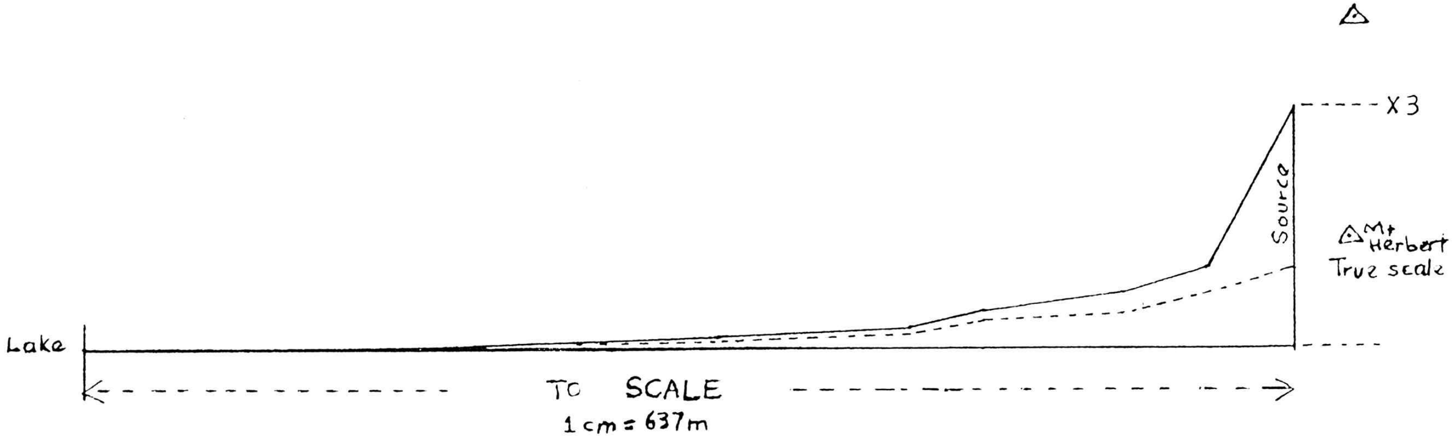
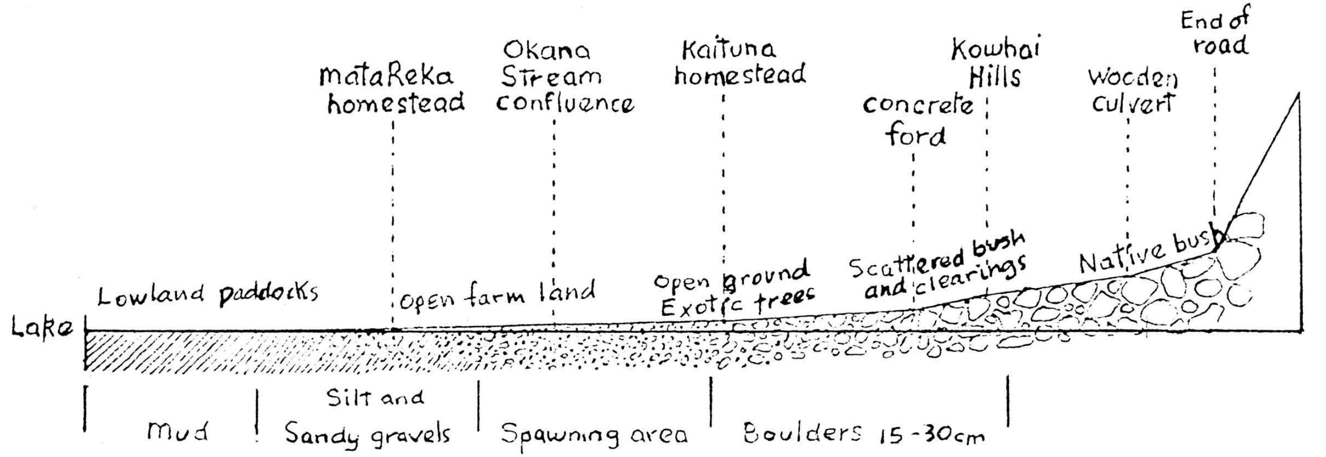

X 3
Source
Mt Herbert
True scale
Lake
TO SCALE
1 cm = 637m

Fig.2


End of road
Wooden culvert
Kowhai Hills
concrete ford
Kaituna homestead
Okana Stream confluence
mataReka homestead
Lake
Lowland paddocks
open farm land
open ground
Exotic trees
Scattered bush and clearings
Native bush
Mud
Silt and Sandy gravels
Spawning area
Boulders 15-30cm

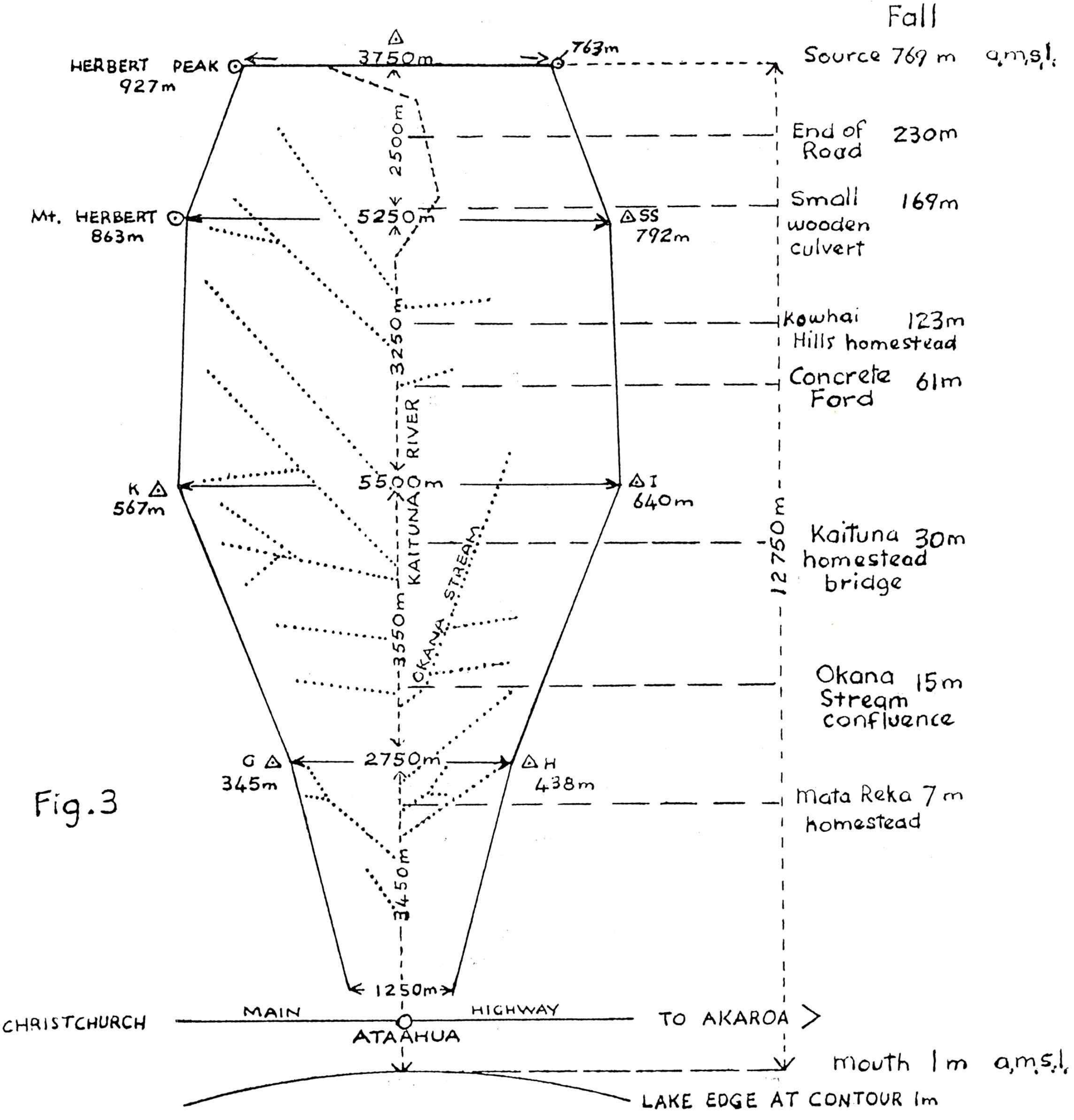


Fig.3

SIMPLIFICATION OF KAITUNA RIVER CATCHMENT

Scale, ----- 637m .... FEEDER STREAMS

Observations made during the 1986 spawning season were difficult because of freshes and floods but the distinct impression gained is that very few trout used the river this season. This coincides with observations made on the Prices Valley stream about the same time.

The concrete ford marked on the catchment diagram (Fig. 3) would constitute an obstruction to upstream fish passage in its present state. Although its vertical height is only about 1m the pool depth at its base is barely 30cm. For a trout to jump 1m it requires 1m of water to jump from, unless the flow over the obstruction is of sufficient depth to allow both jumping and swimming to be combined, having regard to water velocity of course. Compounding the problem is the fact that the sill or edge of the downstream side of the ford is undercut approx. 30cm. This in itself would be an effective barrier.

At one side of the concrete ford is something that looks like a deliberate effort to include a fish pass. I say 'looks like' because it may not be anything of the sort. Enquiries proved negative regarding its construction. It consists of two rows of 44 gallon petrol drums open at both ends and set in the concrete base of the crossing. They would make an excellent fish pass but for the fact they are buried by boulders on the upstream side. Another idea I have however is that they may only have been used to divert the river through, while the remainder of the crossing was being poured. As there is no spawning potential of any consequence above the construction it is not a priority for remedy at this time.

Conclusion

The 2.5km length of the spawning area has a clean ample water supply and reasonable gravel size. The bed of the stream is loose and probably moves to some extent with water volume increases. It appears to be free of pollution to the middle and upper reaches but is badly affected in the lower area by the Blue Green Algae of Lake Ellesmere. No stream improvements are required, with the exception of the concrete ford, sometime in the future.

11. Electric Fishing Kaituna River (by F/O D. R. Maindonald)

Checking for fish presence using an electric fishing machine. **Date** — 17/3/87; **weather** — overcast; **stream conditions** — normal; **members of work party** — F/Os Novis, Ross and Maindonald; **object of work** — to establish if Brown trout are able to gain access above the concrete 'obstruction' 8.5km upstream of the main Christchurch-Akaroa highway.

Sample Location	Length of Sample Run	Fish Recovered	Comments
Sample 1:			
Immediately above the first public road bridge over the Kaituna River approx. 6.8km above the Akaroa highway.	200 m	25 B.T. fingerlings 1 small eel	This section is above the suitable trout spawning area which is described in "Spawning potential of the Kaituna River" report, NCAS 12/9/86.
Sample 2:			
Immediately below the above-mentioned bridge.	170 m	60+ B.T. fingerlings	This section is basically the upstream limit of the spawning gravel which extend for about 2.5km downstream from this point.

Sample 3:

Approximately 100m above the concrete ford which is referred to as the obstruction.	200 m	6 B.T. fingerlings 1 B.T. yearling 1 med & 2 small eels	Large stones and boulders 15-30cm. N.B.: Water became discoloured owing to forestry machines crossing upstream. Colouration not thought to have affected count.

Sample 4:

Near end of public road.	200 m	14 B.T. fingerlings	Large stones and boulders 15-60cm. Stream mainly covered by native bush canopy. Water swiftly flowing. Clear.

Conclusions

Probably during freshes, trout are able to surmount the one metre high obstruction, or during periods of moderately high flow the river becomes sufficiently wide enough to flow round the ends of the concrete crossing, and thus allow upstream access to both large and small fish. The spawning potential is so limited above the crossing however, as to be almost non existent, so the possibility presents itself that the fingerlings recovered during the electric fishing have moved upstream from the spawning area below, rather than come from any redds locally. The 1986 Kaituna report established the spawning area to be confined to a 2.5km section approximately half-way up the 12km long valley. This was considered the only section usable for successful propagation purposes, because below this point the gravels are replaced by sand, mud, and quite deep pools, and eventually the polluted Lake Ellesmere waters. This environment would not be a happy one for young trout, whereas above the spawning area would be an excellent habitat with clean water, large stones and small boulders for cover and a good natural food supply. All the progeny surviving the hatch would be unlikely to stay long on the spawning grounds because of the competition for food. Those that chose a downstream migration might have made a wrong decision.

12. Salmon Spawning — School Creek (Culverden District) 1987 (by Councillor P. Y. Barnes)

The stream was checked on 4/5/87 and again on 4/6/87. The water was clear and the light conditions good on both days. There was about 50% more water in the stream this year and only about 25% of the weed that was present last year. On 4/5/87 there were 10 live fish, 2 dead fish and 12 redds; on 4/6/87 — 6 live fish, 5 dead fish and 18 redds. None of the fish seen would have been more than 5kg and one small live male would not have been more than 1.5kg.

13. Quinnat Salmon Spawning Survey (South Branch of Waimakariri River) (by F/O R. T. Novis)

I checked the South Branch over the 10th, 11th and 12th of June 1987. This was to find out if any Quinnat Salmon were using the stream for spawning. I found no sign that Quinnat salmon were, or had been present. I was surprised at the amount of water that makes up the South Branch — three streams with good spawning potential, plus a few drains were surveyed. They held shingle more suitable for trout than salmon. I was disappointed with the numbers of trout I saw up in the "top" of the streams; this was also mentioned to me by the owner of the surrounding land. Possibly the report below may be the explanation for low numbers.

Barrier on the South Branch of the Waimakariri River: — On the upper part of the Waimakariri (South Branch) there are the remains of what was the Marine Dept. fish trap. When I visited this on the 12th June I found that any fish would have had difficulty gaining access beyond this structure. All dam boards were in, the fish pass was not working and an opening on the true right side was letting too little water through for fish to gain access above it. A lot of time has been spent and many people spoken to re this structure, since 1 2June 1987. I have found out that after the trap was finished with by the Marine Dept., scouts, who have developed the area and made it into one of their camps, leave the dam boards in the structure so that the upstream part of the stream becomes a swimming area. After the summer months the dam boards are removed. This was not done this year, but I have been assured by leaders of the scout group the boards would be taken out by 13/6/87.

14. Selwyn Fish Trap Report, 1985 (F/O D. R. Maindonald)

The Selwyn River fish trap was installed and operating by May 21 1985, on a section of the river between Coes Ford and Ellesmere traffic bridge. This was the approximate site of three previous trappings in 1970, 1976 and 1977. River conditions were low with the source of the water surfacing from the dry riverbed about 11km upstream. The first trout entered the trap on the night of the 24th, three Browns between 700 and 900 grams and in accordance with the Fish Priorities main programme these were weighed, measured, tagged and scale sampled. Additional to this work, up and downstream surveys were carried out and extensive night ranging patrols both on foot and mobile were made of the river and other spawning places in the river system. The Society's caravan was on site. For marking the trout, floy streamer tags were used — these being inserted adjacent to the dorsal fin and were brown in colour.

There was no significant movement of fish through the trap until the 11th June when the numbers increased from one or two per night to around five or six, then climbing to a sub-peak on the 24th with fifteen. Numbers declined again until the 13th July when after heavy rain just over fifty fish passed through in three days. This subsequently proved to be the season's peak as the numbers gradually dropped from this date until the 6th August when rain brought in just seven fish. The trap was dismantled on the 20th August.

Considering that this trap operated without interruption for twelve weeks it is probably the lowest run ever recorded for the Selwyn River, three hundred and nine.

(a) Ratio of sexes: Female — 210 — 68%
Male — 99 — 32%
(b) Average length: Female — 43.4cm
Male — 45.3cm
(c) Average weight: Female — 1099.4gms
Male — 1161.1gms
(d) Overall average length: — 44cm
(e) Overall average weight: — 1119.2gms
(f) Largest male: — 2250gms — 54.8cm
(g) Smallest male: — 550gms — 36.5cm
(h) Largest female: — 2650gms — 59.8cm
(i) Smallest female: — 450gms — 33.6cm

Selwyn trap B.T. length comparisons:—

Year	**Average Overall Length**
1910 — 1920*	50.5cm
1940 — 1945*	47.7cm
1949†	42.2cm
1958†	47.2cm
1977‡	45.7cm
1985	44.0cm

*Hobbs (Bulletin No. 90)
†Percival (N.C.A.S. Annual Reports)
‡N.C.A.S. Annual Reports

Selwyn trap net mark comparisons:—

Year	Percentage of trout marked
1958	6.0%
1966	10.2%
1976	4.9%
1977	3.2%
1985	2.2%

The seven net marked trout through the 1985 trap were in the following length (cm) and weight (gms) range:— 54 =2000; 51 = 2050; 52 = 1700; 49.2 = 1460; 55 = 2450; 57.2 = 2550; 54.6 = 2050; average 53.0cm and 2000 grams. This is probably an indication of the size range affected by flounder nets in Lake Ellesmere. The 1985 Knights Creek (Halswell) trap only had 1.7% net marked fish (two), the average of these being 55.0cm and 2000 grams.

Selwyn River fish trap records for past nineteen years are as follows:—

Year	Weeks in Operation	Number of B.T. through	Year spacing
1966	10	14,427	
1970	14	13,280	4
1971	12	8,343	1
1976	13	2,016	5
1977	7	3,091	1
1985	12	309	8

The Selwyn is a failing fishery evidenced by past and present records. Unscientific some of these records may be, but they are indicative of a major change in the fisheries environment since the 'Wahine' storm in 1968 and Lake Ellesmere with its enrichment since the loss of the **Ruppia** weed is probably the catalyst for this decline. If the spawning run is going to remain low then it is important that those fish that migrate up the Selwyn, and some other Ellesmere streams and drains, be given as much protection as possible.

Surveys were made to assess the number of redds below the trap as soon as it was installed and then again near the end of the trapping season, the time span being about 82 days. On the first survey five redds were seen just below Coe's Ford; the number was not surprising as it was the start of season. The second full length survey, however, (11-13/8/85) revealed the disturbingly low count of forty three for the 3.5km distance.

Special thanks to Jim Dallard and Nelson Early for the assistance they gave with the building of this season's fish trap.

15. Selwyn Fish Trap Report 1987 (by F/O D. R. Maindonald)

This season's trap was operating on the 30th April and remained in a catching situation for nearly twelve weeks until the 21st July when, because of a flood warning, the two wings were removed to relieve the water pressure on the catching pen. The remaining structure was removed after a return to a lower and more workable water level twelve days later.

The site, half-way between Coes Ford and the Leeston-Christchurch highway, was the same chosen for the 1985 trap. Immediately the trap was built a major problem occurred that had not been encountered before. Autumn leaves, floating down the river in countless thousands continually blocked the water flow through the 40m wide structure causing a washout under one of the wings on the first night of operation. This subsequently required 25 bags of shingle to repair. An additional

35 bags were later filled to reinforce this section. The leaf problem required constant 24 hour attention by staff and occasional helpers, and as the Society's caravan could not be brought down from the high country until the 6th of May, staff vehicles were used in this capacity at night. The leaf blockages finally ceased about the 28th of the month.

The first fish to enter the trap (3/5/87) were three Quinnat salmon, all females. Two measured 62cm and the other 62.5cm. No other salmon passed through the trap but F/O Ross took an otolith from a male which he found on the upstream side of the trap on July 11 (age 3). Between the 8th and the 17th of May only four Brown trout came into the trap, but from the 18th onwards the run was fairly constant with 121 through by the end of the month. By this time it was evident that we were going to see some nice sized fish through.

The main run occurred after rain on the 16th and 17th June with 143 fish being processed (weighed, measured, scale sampled and tagged). Between the 26th and the 29th, 54 came in. The last number of any consequence was 32 over the 13th and 14th of July with stragglers bringing the final total to 562; of this total, 111 fish were over 2500gms with 162 being under 1000gms but over 440gms. Soon after installation of this trap, redd counts were carried out by Field Officers R. Novis and B. Ross upstream from the trap, as far as the pylons above Withells Ford, a distance of approx. 11km. Twenty six redds were observed, and it was noted that they were small in size, possibly small resident trout. Below the trap and downstream to McBeans Estate, 11 redds were counted. Both counts were made on the 8th May. On the 9th of July Messrs C. Hardy and G. Kelly from M.A.F. assisted Society field staff by recounting the trap to McBeans section again, so that an indication of fish numbers spawning below the trap could be recorded before the possibility of a fresh or flood obliterating them. Twenty nine were observed.

Trap data is as follows:

Total number of B.T. through trap — 562

(a) Ratio of sexes: Female — 393 — 57%
Male — 169 — 43%
(b) Average length: Female — 48.7cm
Male — 47.6cm
(c) Average weight: Female — 1660.2gms
Male — 1559.6gms
(d) Overall average length: — 48.4cm
(e) Overall average weight: — 1629.9gms
(f) Largest male: — 4020gms — 65.3cm
(g) Smallest male: — 440gms — 32.2cm
(h) Largest female: — 4320gms — 69.cm
(i) Smallest female: — 450gms — 33.8cm

Net marked fish comparisons:

Year	Percentage of fish marked by nets
1958	6.0%
1966	10.2%
1976	4.9%
1977	3.2%
1985	2.2%
1987	1.2%

Tagged Recaptures

Fourteen fish tagged during 1985 were recaptured again in this season's trap. The original Brown tag was left in each fish along with a new Blue one. Growth rates for the two year period were as follows:—

		1985		**1987**	
Original tag number	Sex	(cm) L	(gms) W	(cm) L	(gms) W
0393	F	38.9	700	55.8	2440
0431	F	46.4	1200	62.0	3280
0476	F	34.8	550	53.6	2260
0479	F	50.1	1700	62.8	3820
0496	F	43.9	900	62.4	2900
0504	F	43.0	950	61.6	3140
0514	F	42.3	900	54.6	2220
0534	F	45.0	1250	59.0	3180
0553	F	43.8	950	54.4	1920
0589	F	44.2	1000	60.6	2860
0606	F	46.0	1800	60.6	3000
0653	F	47.8	1500	63.0	3760
0669	F	41.1	950	55.0	2300
0671	F	54.0	2000	67.0	3720

In addition to these, five other fish which entered the trap were considered to have been tagged in 1985, but had subsequently lost them.

Trap data for fish which are thought to have lost their tags:—

F	55.8	2200
F	60.4	2620
F	58.2	2220
M	55.0	2100
F	62.8	3600

These nineteen fish represent approx. 6% of the 1985 run through the Selwyn trap.

Just why this year's run produced better overall fish quality will not really be known until M.A.F. scientists have finished reading the scale samples and then, hopefully, they will be able to inform us whether it was a trip to sea or a plentiful local food source that was responsible.

Acknowledgement

The N.C.A.S. wishes to thank the following for their valued assistance in connection with the trapping programme: Jim Dallard and Nelson Early for assisting with the hard work during the trap's construction; Chas Hardy and Greg Kelly for their assistance with the redd counts; Trevor Washbourne who gave up his own time to assist with the leaf problem and thus allow Society staff to take a break; to Mark Taylor, Marty Burnett, Tom Gough, Martin Tawa, Trevor Washbourne and Greg Kelly for the great job they did in recovering the trap gear from the riverbed and transporting it to Greenpark at the end of the season; and finally to Don Jellyman of M.A.F. who offered MAFFish co-operation and assistance.

16. **Knights Creek Fish Trap 1985 (by F/O D. R. Maindonald)**

As per the Fish Priorities programme for 1985, it had been the Council's intention that a fish trap be installed in the Halswell River to monitor the upstream migration of Brown trout on their way to the spawning grounds. This proved impractical owing to water depth and the soft nature of the river bottom; also it would have prevented the free passage of small boats using the waterway. With a trap near the mouth out of the question, a search was made to find a suitable position further upstream, the requirements being a firm base and a water depth of about 45cm. Neither were found until almost to the Halswell township, and to have to put the trap here would have meant missing the run up its main tributary, Knights Creek. This in effect meant another trap would be required, making three (including the Selwyn) for one person to service. This was not practical because of other commitments. The decision was made to use Knights Creek as the trapping site to obtain information on the number of fish using it to gain access to the rather limited spawning places in the upper drainage system.

The trap was installed with some difficulty because of the soft creek bed, approx. 20m upstream from its confluence with the Halswell in the vicinity of Leadleys Road. To make the site workable at all the entire stream bed over the section to be used was covered with fifty 45cm square concrete paving stones to stop scouring and present a surface that could be walked on over a period of time.

Opened on the 28th May, only four Brown trout entered the trap in the first sixteen days, then the numbers became fairly regular with fifteen over the eight days to the end of the month. On the 13th July heavy rain fell discolouring the creek and this brought a run of forty seven fish over two days; however, the creek flooded overnight blocking the wings with debris, so it must be assumed that some fish probably jumped over. On the 10th August after seventy five days operation the trap was taken out owing to flooding. Altogether 117 fish were recorded and as at the Selwyn trap, all were weighed, measured, scale sampled and tagged with a yellow streamer type tag.

Trap data:—

(a) Ratio of sexes: Female — 58 — 49.5%
Male — 59 — 50.4%
(b) Average length: Female — 43cm
Male — 42.5cm
(c) Average weight: Female — 996.5gms
Male — 927.9gms
(d) Overall average length: — 42.8cm
(e) Overall average weight: — 961.9gms
(f) Largest male: — 2250gms
(g) Smallest male: — 550gms
(h) Largest female: — 2650gms
(i) Smallest female: — 450gms
Number of net marked fish: 2 — 1.7%

Acknowledgement

Thanks to Jim Dallard for his assistance with building the trap and to Mr C. A. Jamieson the land owner, for allowing access across his paddocks.

17. Electric Fishing (by F/O R. T. Novis)

Upper Waimakariri area: Whilst in the upper Waimakariri area, November, 1986, the following streams were checked with the electric fishing machine by D. Maindonald, B. Ross and R. Novis.

Craigieburn Stream 18/11/86

Sample length of stream about 1 km upstream from Lake Pearson—wide open stream bed, little cover, fairly fast flowing water. The stream was flowing into Lake Pearson at the time. All fish caught were identified then released back into the stream. Approximately 100 metres of the stream was fished—18 Brown trout and 2 Rainbow trout were caught. These trout were in very good condition and all were about 10 cms in length. The stream bed held large numbers of caddis, insects, larvae etc. No adult trout or fry were seen.

A second length of the Craigieburn stream was fished about 100 metres. This was about 2 km upstream from the first sample area. This length of water was just downstream from the gorge area — native bush is growing to the stream edge. The water is flowing swifter and the stream bed is full of large boulders. In this length of stream 37 Brown trout and 1 Rainbow trout were caught—all were in good condition and about 10cms long.

It would appear that a good supply of trout for Lake Pearson should come from the Craigieburn River if the waters from the Craigieburn flow permanently into the lake. I would think that the adult trout from Lake Pearson, that use the Craigieburn River to spawn in, would have returned to the lake. Fry, especially from Brown trout should have been present—it was not seen; this may have been because of the rough and swift water, also the electric fishing machine is not very effective on the very small fish.

Bealey Roadside

The lower part of the Bealey roadside stream was checked by the use of the E.F. machine on the 19/11/86. Rainbow ova had been planted in the stream some months before. The occasional sea-run salmon also spawn in this stream. The length of the stream fished was about 120 metres, this being all around the artificial redds and upstream and downstream from them. Salmon fry, bullies, galaxids and the very occasional Rainbow fry were found. The artificial redds were dug into and the occasional free swimming trout fry emerged from the stones—these redds were then left untouched. The Galaxids **(Galaxis vulgaris)** about 5cm long — had in some cases what appeared to be fungus on them. This may have been caused by the effect of the E.F.M. on them.

Andrews Stream

The Andrews Stream was checked, with the electric fishing machine on the 19/11/86. This was carried out in the vicinity of the road bridge which goes into Mt. White station. The main stream was fished for approximately 200 metres. A small side stream which enters the Andrews on the true left, just upstream from the bridge, was fished for about 70 metres. The main stream had large boulders and a large pond area—the water was quite rough just above the pond area. An open stream bed with little cover. Twenty Brown trout, up to 20 cm long were caught in the main stream — these trout were in very good condition, they had very noticeable red spots on their sides, and were fairly dark coloured fish.

Where the side stream enters the Andrews river there is a small fall of water, about 1 metre in height. Upstream from this fall the side stream flows through thick beech forest — this stream was fished for about 70 metres. Twenty-five trout were caught in this length of water, twelve caught at the bottom of the fall, in a very short length of the stream. These trout were between 5cm and 20cms in length, in very good condition, very dark in colour and very bright red spots on their sides. It was interesting to see these trout turn a lighter colour after they had been held in a white holding bucket for a short time. No larger fish or fry were seen. All fish caught were checked, then released into the water that they were caught in.

Slovens Creek — Electric Fished 18/11/86

Slovens Creek was again checked to see if evidence could be found that sea run Quinnat salmon had managed to get above the water fall area, which is just below where the Blackwater ford crosses the creek. No Quinnat salmon fry or any other sign that salmon had reached above the falls was found when the waters of the creek were checked by using the N.C.A.S. electric fishing gear on the 18/11/86.

The following is a summary of the day's "fishing".

Operators:— F/O's D. Maindonald, B. Ross and R. Novis — assisted by Messrs A. Ross and P. Jenkins.

The same sample areas were checked as described in the N.C.A.S. Annual Report 1986, page 40. There was more water flowing down the creek this year. Evidence that a large flood had been down the stream since last year was noticeable.

Section 1 at Lake Hawdon turnoff. Species caught = trout fry, possible Brown trout, approx. 200; 1 Rainbow trout 12cm long, 4 long finned eels, up to 2 kilos in weight; 35 Galaxids, 20 bullies; 175 metres fished using 420 volts.

Section 2 approx. 1 km below falls. Distance fished 200 metres; 310 volts. Species caught = 1 yearling Brown trout, 15 Q.salmon fry, 5 eels which were about 15 cm long.

Section 3 — Blackwater Ford (above the falls). Distance fished 200 metres — 310 volts. Species caught — 1 Brown trout (25 cm long), 8 Brown trout (10 cm long), 2 B.T. fry, 2 bullies.

Section 4 (above falls). Distance fished 100 metres — 420 volts. Species caught = 1 Brown trout fry, 2 Brown trout (10 cm long), 1 bully. All the fish were identified then released back into the waters they were caught in with the exception of some of the eels which were killed. It was disappointing to find so few Q.salmon fry below the falls this year — only 15 were located; last year in the same area 214 were found. There is the possibility that flooding may have been the cause, as last year 31 eels were found in the same area compared with 5 this year. I have seen where floods have reached 2 metres above normal water height in this creek.

18. Report re Lake Hawdon By-pass Channel (by F/O B. J. Ross)

As per Fish Priorities 1987 (A) 6: "Investigate the Lake Hawdon by-pass channel to see if it can be used as a means of enhancing the salmon run".

1. **Investigation:**

On Sunday, February 8th, 1987, I inspected the outlet channel from L. Hawdon — there appeared to be a reasonable flow going down it, as the lake was reasonably full. The channel for the most part, is approx. 1 m wide by $\frac{1}{2}$-1 m deep. There are a few narrow places along its length where part of the bank has collapsed into it. The channel itself is largely overgrown by large snow grasses on the banks — the bottom of the channel is made up entirely of mud— the whole area being part of a large wetland at the N.W. end of Lake Hawdon. Access to and from the lake for fish, would appear to be possible still.

2. **Salmon Enhancement Potential**

I can see no way the channel by itself, could be utilised to enhance the Q.S. run. As previously stated the channel bed is made up entirely of mud and therefore totally unsuitable for spawning purposes. However, the reason the channel was dug in the first place by the Society was to enable Q.S. released into L. Hawdon to leave the lake and make their way into Slovens Creek, and eventually the Waimakariri River, thus enhancing the run of salmon in that river. Lake Hawdon acted as a nursery area. However, how the returning Q.S. were to negotiate the Slovens Creek falls on their return upstream migration is unknown.

3. Summary

Unless the Society intends to reintroduce a programme of salmon smolt releases into L. Hawdon, then the by-pass channel is of no benefit in the enhancement of the Q.S. run, in my opinion. Even if Q.S. were able to negotiate the Slovens Creek falls, I feel the L. Hawdon channel would be of little benefit to them if at all. There may be some interchange of trout stocks between L. Hawdon and Slovens Ck. via the outlet channel—this could be possibly associated with the trout spawning season: however I have no evidence to substantiate this theory.

19. Lake Lyndon Outlet Stream (Part 1). (By F/O R. T. Novis)

The outlet stream at the south end of Lake Lyndon is regulated in its water height by the water height of the lake. If the lake water is high when the rainbow trout spawn, some of the trout leave the lake and spawn in the outlet stream. If they spawn there, they, and all their young are lost to Lake Lyndon. The outlet stream leaves Lake Lyndon and flows close by the Lyndon-Coleridge road until it reaches the Lyndon tarn. The tarn is a small area of water about 80 metres across. The waters leave the tarn by flowing through a large tussock/swamp area then down a deep gully which has small water-falls on it. The water finally joins the Acheron which eventually flows into the Rakaia river, and/or Lake Coleridge. I would think that there would be areas that may dry or become very hot along the waterway.

The reason that the trout do not return to L. Lyndon after spawning is that there is a well-built rock and wire groyne across the whole of the outlet stream bed. This groyne is about 1 metre high and is only a short distance from the lake. This was built by members of the N.C.A.S. staff at the same time as the wall was constructed at the north end of L. Lyndon to stop the trout leaving the lake in 1944. Since then the area in front (upstream) of the groyne has silted up. There are also pine trees planted between the lake and the groyne along the stream bed. After the 1986 spawning season there were hundreds of rainbow trout fry in the outlet stream. They could not be caught owing to the slime etc. in the stream. I caught two or three adult trout and returned them to the lake. This will occur each spawning season there is a high lake: I think most of the fry would be lost. If it is considered worthwhile I would like to visit the area with a member of the Fish Committee and try to eliminate the problem.

Lake Lyndon Outlet Stream (Part II)

On 7/3/87 the outlet stream from Lake Lyndon was visited by Mr M. Snowdon, Mr A. Ross and myself. This visit was to see if a way could be found to stop trout leaving the lake via the outlet stream, especially during the spawning season. It was found that a rock wall at the south end of Lake Lyndon had been constructed by the N.C.A.S. This was to stop trout leaving the lake via the outlet stream. The middle part of the wall has been broken out by persons unknown, since the wall was made, and this enables any fish to leave the lake, once the lake level becomes high.

It was decided, on 7/3/87, that if this breach in the wall was repaired and the original rock wall was extended at the roadside end for a metre or so, the problem of any trout leaving the lake would be stopped. The repair would be made with large rocks held with wire netting, this would let water flow through but would prevent trout of any size passing through. The rock to be used should be available from the surrounding area. The wire netting (groyne wire) could be available from wire held at Greenpark. Approximate time required to complete work, two people for two days. I do not think that any other parties (Catchment Board etc.) would have to be contacted before work was to start.

20. Salmon Ova Planting — 21st June 1987 (by J. N. Bradley)

When the M.A.F. made the offer of 500,000 eyed salmon ova from the Glenariffe Hatchery at a reduced commercial rate, the N.C.A.S. was taken by surprise with no firm plans for planting sites for such a quantity at short notice. As enhancement of the salmon fishery is Acclimatisation Society business, however, it was decided to accept the challenge first and ask questions later. The ova was available for planting only over the weekend of the 20th and 21st June and the Society's first aim was enhancement of the Waimakariri fishery after a mediocre spawning season, so the only questions left were "which day" and "which spawning streams".

As the Rugby World Cup final was to be played on the 20th, obviously the planting day had to be on the 21st — the shortest day. Possible sites were left to the investigation of Field Officer, Ross Novis. The number of ova involved, a least twice the total we had previously planted in one day, demanded as little time as possible to be lost in travelling between sites. Several areas for the work were possible, but some with good access but only limited spawning gravel, would make time lost to travelling compared with available redd space, a stopping factor.

A decision was made on the morning of the planting to run the entire planting crew, after all had met at the Cass M.O.W. depot, down to the Cass Hill Stream, using the three 4WD off-road vehicles that were available. The crew consisted of N.C.A.S. Field Officers, Ross Novis and Brian Ross, four N.C.A.S. Councillors and twelve Canterbury Anglers' Club volunteers. The ova was delivered on site by 2 M,A,F, technicians, fortunately in another 4WD vehicle. Although the track to the stream was a tortuous hair-raising slide, the choice was good as the stream was in excellent order with a length of at least two kilometres of ideal gravel and flows. The wild run had thought that also, so a number of natural redds and decaying carcasses needed to be avoided during the day. With five barrels, about fifteen shovels and two ova buckets on the move for at least four hours between 10.15 a.m. and 3.15 p.m. the result was Cass Hill Stream spawning was enhanced by half a million ova in 129 artificial redds. The volunteers on this very successful exercise who gave their time to a repetitive grind of back straining shovelling and humping of ova deserve the grateful thanks of the N.C.A.S., the M.A.F. and we hope, the salmon anglers of three or four years hence.

21. South Branch Waimakariri Salmon Ova Planting — 5th July 1987 (By J. N. Bradley)

The N.C.A.S. planted 219,000 eyed salmon ova from the M.A.F., Glenariffe, in artificial redds in component streams of the South Branch of the Waimakariri River on the morning of Sunday, July the 5th. Helping Field Officer Brian Ross and six Councillors were about twenty-five volounteers from the Salmon Anglers Association. There were 52 redds seeded in 5 different locations. These ova were from fish stripped on the 18th, 20th and 22nd of May and eyed on the 12th, 15th and 18th of June. Water temperature at Glenariffe when the ova left there early on Sunday morning was 7.1^{0}C and the temperature of the South Branch receiving water was 10^{0}C.

A disappointing aspect of this plantinig, in the Shipley's farm area, was the free access cattle had to the stream bed. Although stream flows and spawning gravels were suitable, and a number of natural trout redds testified to the choice of locality, destruction of some redds by clumsy cattle is inevitable. We now have four seasons' experience in the preparation of artificial redds and the doubling of our numbers of barrels and ova-handling equipment has speeded up our efforts to a capability of planting better than 100,000 ova per hour in suitable areas. The active time for planting on this day was two hours between 9.15 a.m. and 11.30 a.m. This seeding, we hope, together with the 500,000 ova planted in the Cass Hill Stream two weeks ago, should add up to a bumper Waimakariri salmon season in 1990. Our thanks to M.A.F. and the Salmon Anglers Association for their interest and effort.

22. **Brown Trout Ova Planting, 1st August 1987 (By M. E. Snowdon)**

25,000 Brown trout eyed ova were received by air from Ngongotaha Hatchery, Rotorua, on the afternoon of Friday July 31st. A larger order had been placed, but as had been the case previously, with Brown trout ova, the supply was difficult and consequently our order was reduced. We thank the hatchery staff for supply what they could. The egges in this shipment and the following one of Rainbows, were packed as usual in chilly bins. A new departure however, is the elimination of ice. The bins are carefully sealed with tape, and the contents of eggs, trays, foam packing and muslin bags go in cool, and remain satisfactorily cool for approximately 24 hours before we open them. I am told by hatchery staff, that this bin will remain viable for longer and this has been proven. Naturally, I saw to it that the bins were kept cool before and during the journey to the planting site. These bins must not however, be refrigerated.

The planting site for this consignment of ova was to be the spring fed creeks at the head of Lake Sumner. The length of the journey both by 4WD and boat, plus the smaller quantitiy of ova, indicated a modest sized work party. Accordingly, I set out with Tony Matravers, who is experienced in this work, plus Messrs Sheldon, Kirkness and Tozer. At Loch Katrine we were joined by the Honorary Ranger, Lem Willum and others.

At the head of Lake Sumner, the Hurunui River is its main inlet. There are also a number of spring-fed creeks with suitable spawning gravels. These creeks had only a small number of natural redds in them, and we used two creeks dividing the ova between them. One creek is to the North of the main river, and the other to the South. The eggs were planted approximately 1,500 to 2,000 per artificial redd. Weather conditions were cool and damp with occasional drizzle, which is probably ideal for the care of the eggs. It is hoped that this implanting will help bring the area, and particularly the top end of Lake Sumner, back to the excellent fishing it used to provide. Fishing pressure has been considerably increased in recent years.

23. **Rainbow Trout Ova Planting, 5th August, 1987 (By M. E. Snowdon)**

Four days after receiving a consignment of Brown Trout eggs from Rotorua, it was back to the airport for 80,000 Rainbow eyed ova from the Tongariro hatchery. This time the parent fish were normal run Tongariro river hens, whose eggs were fertilised by milt from large jacks from the genetic breeding programme started with Tarawera fish. We raised a mid-week working party of eleven from staff, Councillors and the Canterbury Anglers Club, and met at Spring Creek on the Porters Heights Road. This water is part of the Broken

River system, and our intentions this year, with these R/T ova were to follow up the plantings of last year in this upper Waimakariri system. 25,000 of the eggs were planted here in 13 redds. The water and gravel looked good.

A move was then made to Lake Hawdon where the three 4WD vehicles in the party were used to transport all the team and gear from the road limit over the track into the South East end of the lake. Heavy rain the night before made the hill on this track very difficult. It was marginal for the 4WD. Here, the excellent lake edge received 25,000 eggs, again in 13 redds.

The final move for the day was to the Bealey Roadside Stream, again a repeat or backup to last year's plantings, as were the other two sites. This stream is good spring-fed water flowing by the road causeway at the confluence of the Waimakariri and Bealey rivers. The remaining 30,000 ova were planted here in 16 redds.

The weather alternated during the day between sunshine, and overcast with drizzle. A fresh westerly wind made planting at the Lake Hawdon more difficult than last year, because of the chop raised by the wind. Having carried out this programme two years running, it is anticipated we may get a return of the Rainbow fishing, enjoyed a few years ago in this area.

24. Raising Eyed Trout Ova at Silverstream (by M. E. Snowdon)

As per the Fish Priorities, the matter of raising our own supply of trout ova with the use of the facilities at Silverstream Hatchery was pursued and has reached a satisfactory conclusion. We are indebted to staff of MAFFish for their help in getting this scheme going. It is of importance to us to have an alternative supply of eyed ova, particularly as the cost of supplies from the North Island hatcheries will be much higher from now on.

The programme involves capturing rainbows from the Hennah Stream, when there is normally an over-supply, stripping and fertilising at Silverstream, and raising the ova to eyed stage in the bore water system there. Some of the eyed ova are to be returned to the Coleridge system if it is considered necessary, and practical, for example, to induce a rainbow run in Twin Creeks where it is usual to find only the earlier Browns using the gravel beds there.

At the time of writing, fish have been captured and stripped and the eggs placed in the hatchery. Sites for planting have been selected, according to need, but a full completion of this aspect may depend on more fish being captured. The parent fish will be released to recover, to be available to the angler, or spawn again. Our thanks are due to M.A.F. staff, Jim Dallard and F/O Denis Maindonald for their help and work on this project.

25. Report re Damage to Lake Coleridge Spawning Streams by August Flood — 1986. (By F/O B. J. Ross)

Introduction:

A brief survey of the main spawning streams for the L.Coleridge area salmonids was undertaken on August 14, 1986, in order to ascertain what, if any, damage had been incurred by recent flooding after very heavy rain in the area; 75 mm of rain had been recorded at the Homestead - Lake Coleridge Station, 7th August.

Scamander Stream

Stream was still possibly 600mm+ higher than normal, and slightly discoloured. The culvert across the road had apparently been blocked by two large boulders and floodwaters had scoured out the road. Much gravel had been moved in the streambed and it is doubtful if any redds present before the flood, would have remained intact. Some damage to banks was evident upstream from the road. A substantial flow down the L.Georgina outlet contributed to the flow of Scamander Stream.

Twin Creeks

Flooding of the "true right" branch was evident, although nowhere near as bad as experienced at Scamander Stream. It appeared that the water level had only risen approximately 300 mm or so. Debris caught in the culvert had caused the creek to backup and some water had obviously flowed down the road and into the "left branch" culvert, and across the road also. Damage to the streambed would appear to be minimal; in fact 2 trout on a fresh redd were seen just downstream of the road, and when disturbed, shot upstream into the culvert. The water was crystal clear at the time of the survey.

Ryton River

The river had been in a reasonable flood. There still was a large volume going down it, with the gravel still shifting. Redds present in the main stream would have been destroyed for certain. The river had changed its course several times e.g., the Q.S. barrier site was now in the Ryton River main stream, whereas formally it was only in the Hennah Stream water. The top end of the Ryton R. at the L.Moncks Ford, on the other hand, appeared to be low and only slightly discoloured. This would lead one to assume that much of the excess water in the Ryton R. further down, was coming from Goldney Creek, which because of limitations of time, was not checked.

Hennah Stream

Still high and slightly discoloured. Had overtopped bank in a couple of places. Minimal shingle movement was apparent. Excess water was seeping through the boulders—two places at the top end of the cut. A number of trout and redds were seen in the stream.

Lake Monck Inlet

Water level higher, but clear. Fresh redds were seen everywhere. Lake level was high.

Lake Monck Outlet

Full flow down outlet because of high lake level. A few redds seen. Outlet stream appears to be in good shape for spawning Rainbows to use, i.e., plenty of water and gravel.

Lake Selfe Outlet

Full flow down outlet, water discoloured by lake. (Waterfall Creek has discoloured the whole lake). Some water was flowing across the ground — area upstream of the ford near the bottom end. Water velocity was such that some shingle movement would have occurred.

Lake Georgina Inlet

Reasonable water flow; however, the inlet stream is in bad need of a clean-out — mainly due to livestock filling creek in with silt. Water flowing across the ground in many places, i.e., not defined to a stream.

Lake Georgina Outlet

Full flow down the outlet — slightly discoloured. Outlet flowing right through to Scamander Stream although this not expected to continue for long. Outlet stream is in good shape for spawning Rainbows from L. Georgina this season, and may redress the balance for those unable to use much of the inlet stream.

(D) GENERAL PROGRAMME:

1. **Splake Release — Lake Letitia (By F/O R. T. Novis)**

Splake which had been bred and reared at Wanaka fish hatchery from Mackinaw out of Lake Pearson, were released in Lake Letitia (Mt. White) on the 11/3/87. Splake are a cross between a female Mackinaw and a male Brook Trout. These fish were transported in N.C.A.S. fish transporters from Wanaka with 100% survival when released at L. Letitia. Two transporters were used, the larger of the two, (approximately 120 gals.) carried 1218 Splake which were about 280 days old; these fish had not been graded and were very mixed sizes. The second transporter carried adult Splake, the total weight being just over 50 kg for the total 21 fish.

Time taken for the journey was from 9.30 a.m. to 5.15 p.m. with half an hour out for petrol stops = 7¾ hours that the splake were in the transporters. The water temperature was 11°C at Wanaka and 15°C in L.Letitia, 25 kg of ice was taken on the trip and this was added to the water in the units when considered necessary, the combination of the ice and the cold wet weather conditions that were experienced over part of the journey was responsible for the water in the transporters never varying more than a degree. Oxygen was used over the whole journey. On the larger unit, at 2 litres per minute, half a cylinder of oxygen was used. On the smaller unit, to start with, for ½ hour, the flow was 2.5 litres per minute then turned back to 2 L.p.m. for the rest of the journey; 1½ cylinders of oxygen was used. The release area was checked the following morning and only one adult and juvenile splake were seen close to the water's edge. Only a shoreline check was made with visibility good for about 4 metres out from the water's edge.

The adult splake were tagged with a small round metal tag which was attached to the dorsal fin; the letter T is on each tag along with a number.

Tag No.	Weight - kg.	Length - cm.	Sex
T.90	3.2 kg	62 cm	?
T.38	2.65	60	M
T.42	2.25	59	F
T.51	2.3	58	M
T.66	2.6	60	M
T.26	3.0	63	M
T.68	2.6	57	M
T.44	2.6	60	M
T.36	2.4	58	M
T.74	2.3	57	F
T.91	2.4	58	F
T.21	2.2	57.5	M
T.89	2.4	54.5	M
T.63	2.3	57.0	F
T.35	2.2	57.0	F
T.15	2.0	56.0	F
T.3	2.0	55.0	M
T.33	2.7	60.5	F
T.39	2.0	56.0	F
T.46	3.0	60.0	F
Last tag	2.5	59.5	F

2. Further Splake Transfer from Wanaka Fish Hatchery to Lake Letitia.

(By F/O R.T. Novis)

On the 27th May 1987 the N.C.A.S. 120 gal. fish transporter was loaded at Wanaka Hatchery with 12 female and 14 male adult splake. These were some of the remaining splake that had been left at Wanaka after the transfer to Lake Letitia 11/3/87. The decision not to weigh or measure these fish was made after we noted how near spawning the fish were. All the fish were previously tagged with a small metal tag. The splake were estimated to weigh between 1.5 kg to 3.5 kg. They were loaded into the transporter at 3.30 p.m. on the 27 May — Water from the Wanaka Hatchery was used to fill the transporter, and this water was left flowing through the transporter until 8 a.m. on 28 May. The water was then turned off and the oxygen turned on, and, after adjusting the flow, the fish were observed for about ½ hour in the transporter before leaving for Lake Letitia.

The trip to L. Letitia started at 8.50 a.m. During the journey stops were made periodically to check the state of the splake. The splake travelled to Letitia very well and were released into the lake at 4 p.m. 28/5/87 = 24½ hours in the transporter, the travelling time on the road being 7 hours 10min. Survival of splake being 100%. Ice was added to the water in the transporter whenever it was considered necessary. Approx. 25 kg of ice was purchased for the trip and there was none left over. The amount of oxygen used was minimal and the gauge on the full bottle of oxygen only dropped about 1/8 of an inch for the complete trip. The temperature of the water put into the transporter at Wanaka was 8°C. During the time from Wanaka to L. Letitia this temp. varied from 8°C - 11°C. The lake temp. was 9°C. The splake were observed by M.A.F. divers who were in L. Letitia — these divers reported that all the splake swam out into the lake straight away after release. A check the following morning produced no sightings of the released splake.

N.B: The Society has closed Lake Letitia to fishing for a period of 2 years, reopening in November 1989, to allow the splake to establish.

3. Research on Splake

It will be noticed that in F/O Novis's account of the second splake release, mention is made of the presence of M.A.F. divers. Arrangements had been made between M.A.F. and N.C.A.S. to have as much observation made of the fish as possible. In the event, the weather was so atrocious that it hampered the observations. The divers reported that the fish were quick to seek cover out in the lake and looked to be in good condition after their long journey. There is an intention by M.A.F. that a small research programme will be conducted to monitor the introduction of splake into Lake Letitia. This will include biology of the hybrid fish, ecological studies, bathymetry of the lake, spawning sites, water qualities and comparisons with Lake Pearson, where the parent Mackinaw came from.

4. Observations at Westlake (By M. E. Snowdon)

In May of this year I was asked by the N.C.A.S. Council to look at and report on the current situation at Westlake, Halswell. I have from time to time, kept an eye on this project, and accordingly went again to this little lake in June. It will be recalled that on 20/11/1985 we placed 101 Brown trout, of fingerling up to three-year-old size, in the lake. These had been captured by electric fishing of water races in the Hororata and Coalgate districts. The project involves stocking Westlake with trout, keeping it closed until the trout and the landscaped edges are established, and then making suitable arrangements to encourage juniors in fishing and fly casting. The lake was a shingle pit, known as Burkes Pond and had been incorporated into a housing scheme.

The Company developing the area, had by 1986 made considerable progress in landscaping the edges, more particularly to the North and East, but by June of this year (1987) had covered some of the eastern side landscaping with extensive dumps of rubble from demolished buildings. When eventually dealt with, this may form shelter from the east wind which is prevalent in this district. Scrub and weeds have grown on the prepared edges, but this will not matter while the land settles.

Examination of the water revealed the development of what appeared to be suitable habitat for trout and aquatic food chains, and most importantly, in the half hour before dusk, there were a number of very small trout rising to what seemed to be a minor hatch of insects. The temperature was comparatively mild. It is to be hoped that these small trout might be the results of spawning in the winter of 1986, as some of the fish we placed in there in 1985 were mature.

5. Fish of the Year Trophies

As per the 1986 A.G.M. recommendation, and 18/2/87 Council motion, a photograph of the adult and junior fish trophies has been included in this Annual report.

(a) **Roger Foote Trophy:** — First donated in 1963 by Mr J. E. Foote, Council member the following winners being recorded (B = Brown trout; R = Rainbow trout):—

Date	Winner	Species	Weight	Area
1963-64	R. F. Stead	B	13lb 12oz	Waiau R.
1964-65	C. Saunders	B	16lb	Rakaia R.
1965-66	S. F. Knight	B	13lb	Rakaia R.
1966-67	S. A. Glennie	B	15lb 1½oz	Little River
1- 1-68	J. Whitmore	B	12lb	Lake Ida
27- 4-69	S. N. Manning	B	14lb 4oz	Hurunui River
7-12-69	S. J. Price	B	11lb	Rakaia R. mouth
18- 4-71	R. Ramsay	B	11lb	Little River
22- 1-72	J. C. Montgomery	B	13lb 1oz	Waiau River
12- 5-77	J. E. Furneaux	B	12lb 4oz	Ashley River
5-11-77	M. A. Smith	B	5.34 kg	Scamander Bay (L. Coleridge)
1-11-85	S. Fisher	B	6.15 kg	Rakaia R. mouth

(b) **Junior Fish Trophy:**—First donated to the Society in 1965 by two members of the N.C.A.S. Council, Messrs Don Brown and Rod Satherly. (B = Brown trout; R = Rainbow trout):—

Date	Winner	Species	Weight	Area
1966-67	G. Witty	B	5lb	Rakaia R. gorge
17-12-67	I. Eggleton	B	5lb 12oz	Halswell River
5- 1-69	S. Price	B	10lb 8oz	Rakaia R. mouth
22-11-69	K. Underhay	R	3lb 12oz	L. Coleridge
12- 4-71	R. Wiersma	B	8lb 9½oz	Little River

(c) The rules for these competitions, for the best trout caught in the N.C.A.S. district, were drawn up in 1963, and are as follows:—

1. The competitions are for the heaviest trout, Rainbow or Brown, caught by an angler in this Society's district and who must be a member of the Society.

2. On a form (to be supplied by the Society) competitors must state:—
   - (a) The locality where fish was caught;
   - (b) Type of bait used;
   - (c) Type of fish (Brown or Rainbow);
   - (d) Weight;
   - (e) Length;
   - (f) Date caught.
3. Sellers of fishing licences will be authorised to check the weights of fish entered in the competition using duly **certified scales.** Completed forms are to be forwarded to the Secretary, 61 Bealey Avenue, Christchurch 1; telephone: 69-191.
4. Two forms exist, for both the adult **and** junior trophies, both available at the Society's Offices. Obviously, the fishing period covers the time 1st October to 30th September of the following year.

6. Report on the Finding of Blind Trout in Okuti Stream (Lake Forsyth)

(By F/O R. T. Novis)

I checked the Okuti stream for trout that were reported to be blind, on the afternoon of the 21/1/87. I started at the road bridge by "Kinloch" and walked downstream. I walked about 400 metres, but then found that visibility became bad. In the 400 metres that I covered I saw about 80 Brown trout. These trout varied in size from large fingerlings to 1.5 kgs. The trout were mainly in deep holes; 7 of the trout were black in colour and appeared to be blind — these were all good sized trout. I managed to catch 5 of these black coloured trout, and found all had something wrong with their eyes—some had white coloured eyes and some had the pupil of their eyes burst and blood was coming from the pupil. One of the five trout was a "slab", the others were not in very good condition. Slime from one trout could be seen hanging from its sides when it was in the water. The water in the stream was flowing, but the "holes" were deep and long. I doubt if there would be much flow through them. Water temp was 20.5^{0}C at 6 p.m.

I walked above the bridge for about 200 metres. I saw about 20 trout, all appeared in good health. Their sizes were similar to the ones I saw downstream. The stream was flowing quite well, without the large murky "holes". I returned to the stream the next morning and saw about the same number of trout present (over 30 in one "hole"). There were 2 blind ones which I could not catch. The blind trout would be about 1.5 kg. The length of stream where the blind trout were would be about 500 metres upstream from the junction of the Okana and the Okuti rivers — that junction is about 1 km upstream from Lake Forsyth. The 5 netted trout were handed into the Agriculture and Fisheries on 22/1/87 after being held chilled overnight. Trout with damaged eyes have previously been noted in the Okuti stream, one on the 20/1/86.

The following Report was received (19/2/87) from the Animal Health Laboratory of the M.A.F. after examination of the blind trout:—

"Eye: The eyes of these fish have ruptured and the lens has become lost so no check on the metacercaria of **Diplostomum** etc. can be made. The back of the eye is greatly hyperplastic with very large blood vessels and capillaries extending into all parts of the eye and there are very large areas of haemorrhage. The cornea has inflammatory cells invading it and also the formation of capillaries. The muscles attached to the sclera are invaded with inflammatory cells as well. The conjunctiva is considerably thickened with numerous mucous cells present. These changes suggest that some form of irritant has caused the blindness and the reaction of the blood vessels is responding to infection. There does not appear to be a parasitic cause present.

Pancreas: No significant pathological changes.

Caeca: There appear to be no changes of any significance within the caeca. However the caeca do not appear to contain any food.

Heart: No significant pathological changes are present within the heart.

Spleen: No significant pathological changes present.

Comment

The above lack of lesions would suggest that perhaps some corrosive material within the water has possibly caused at some time the blindness to the eyes resulting in the fish not feeding properly and becoming cachectic."

7. Salmon By-catch at Sea

Recently the Society has addressed at some length the problem of the salmon catch by trawlers at sea. It is well known that this has now reached massive proportions and the Acclimatisation Societies, in whose districts salmon are a feature of the anglers bag, have made representations in all appropriate quarters to have this problem resolved.

Other interested parties have added to the suggestions for ways of countering target fishing for salmon at sea, but no satisfactory agreement has been reached. Anglers can rest assured that your Society will do its utmost to preserve our recreational salmon fishery.

8. Tourist Scheme for Ryton Station

At the time of writing there is considerable concern being expressed by recreational users of the outdoors about the above scheme, named "The Pinnacles" by the developers.

The N.C.A.S. has kept a close watch on proceedings and has had, and is contriving to have, input regarding the proposed development in the high country. We are placing the utmost importance on matters of water quality and access, and anglers can rely on the Society to pursue the interests of our licence holders in those and other aspects.

Some members may not realise, that at the present time the developers are formulating a plan and will next prepare an environmental impact report. It will be some time before they make application to various authorities such as the Malvern County Council and the North Canterbury Catchment Board. One of the most important moves will take place if and when that application is made.

9. Clearance of Willows on the Okana River (Little River)

In December 1986 a work party made up from the Society, its staff, and members of the Canterbury Anglers Club, tackled the overhanging willows along part of the Okana River. This work became necessary because the trailing willows were of concern to the Catchment Board and rather than have them removed entirely it was considered that a labour intensive operation could get rid of the overhanging and underwater growth and still keep the attractions of the river, and improve the possibilities for angling.

The work was organised by F/O D. R. Maindonald and Mr P. Robson (Honorary Ranger at Little River). They had the co-operation of the Catchment Board and the Wairewa County Council. It was necessary to use about six small boats, heavy drag ropes and 4WD vehicles. The project was successfully completed in one day, and resulted in very acceptable improvements in this river which is a valuable fishery.

10. **Styx Mill Basin Reserve**

The Waimairi District Council has produced plans of proposed developments for the Styx Mill Basin. Proposals are for a reserve with lakes, walkways and streams. The N.C.A.S. requested Field Officer Brian Ross to investigate the proposals with the Council's landscape architect and make a preliminary report. This was done in commendable detail with particular attention to aspects of fish habitat, retention of spawning, angling and wildlife values. It is intended to continue liaisons with the Council on this subject.

11. **The following reports** have been received from sources concerned with fisheries research etc.

(a) Fisheries Research Division has produced a report entitled "An Atlas of New Zealand Freshwater Fish Distributions", by R. M. McDowall and J. Richardson; Occasional Publication, data series No. 26, 49 pages. Presents 43 maps for each species of freshwater fish in New Zealand and plots their known distribution (1986).

(b) Three Fisheries Environmental Reports have been received, copies of which may be purchased from the Fisheries Research Division:—

- No. 65: "The Lake Coleridge Fishery," by M. Flain; 65 pages.
- No. 67: "Experimental rearing of chinook salmon fingerlings in unfed ponds of Glenariffe", by C. L. Hopkins; 28 pages.
- No. 70: "The relative value of Tauranga rivers to N.Z. Anglers", by J. Richardson, L. D. Teirney, M. J. Unwin; 60 pages.

(c) Fisheries Environmental Report No. 71 — "Salmon and Trout stocks of the Rangitata River", can now be purchased from the M.A.F. at Kyle Street for about $12. It gives details of the various fisheries present in the Rangitata River, as part of a series of such reports for all N.Z. major rivers,

(d) Fisheries Environmental Report No. 78 has been received from M.A.F., entitled "The Relative Value of Ashburton Rivers to N.Z. Anglers", by L. D. Teirney, J. Richardson, M. J. Unwin, 70 pages. Another very useful reference work in the series being produced by M.A.F. based on past questionnaire.

12. The Society has adopted a policy covering fishing competitions in the N.C.A.S. district. This is in response to the Fisheries Amendment Act 1986, Clause 17, which inserts a new Section 69A to the principle Fisheries Act, 1983, relating to the promotion, organising and participating in fishing competitions. Since all people or organisations wishing to organise competitions must now get the approval of the Director-General, after consultation with the appropriate Acclimatisation Socieity, it was felt necessary for the Society to formulate a policy as a reference and guideline document to be used when requested for comment by M.A.F. Copies of the policy have been sent to local clubs and M.A.F., Wellington.

13. **Okana River Survey (By Mr W. J. McKillop)**

Mr McKillop was requested by the Society to carry out a general survey (August 1985) of the Okana River to ascertain spawning potential and any need for stream improvements. An abridged version of his reports follows.

(a) Top section from Main Road Bridge (Okana) to approx. 3 miles up river: — very small amount of suitable shingle immediately above bridge; water visibility not very good; water has brown brackish tinge; entry of cattle almost everywhere within 300 yards; river banks churned up by cattle and very muddy. The river then develops into a rough mountainous type with numerous very large and small boulders, and any suitable spawning shingles are in small sections or pockets, between the boulders. A tributary branches up to the left within a few hundred yards of the road bridge. Looking up to Western Valley, possible spawning in that area, as locals say that fish do inhabit the stream at times. A few possible old redds were sighted otherwise no sign of any positive redds. Large flooding within the last two months has occurred while over the years most shingle had been washed away. Saw two fish about 2 miles above the main road bridge at the Weesker Farm Bridge area. The river then continues up to Stock Route Bridge; turns left and narrows down to a couple of yards or less; then up past cow sheds (Newton Bros.). The water was discoloured and brackish. Constant discharge from cow sheds possible.

(b) Section below Main Road Bridge (Okana): — river for about 70 yards has suitable shingle but water from above the bridge and muddy banks gives the water a brackish appearance. From then on downstream the river changes completely with no boulders or rocks and with patches of shingle which could be used by spawning fish (sediment could have an effect on hatchery ova). The main fishery exists from the main road bridge to the small access bridge by the Little River Hotel. This section is confirmed as a good fishery, with easy access, at most places from the back road which follows the river, though I believe Maori land (ownership of land I am told is difficult to establish; no person has been denied access as far as we know). This lower section of river is worth looking at. Large willow trees have fallen into the river and in the banks and does restrict the opportunity for anglers at some of the very deep holding pools. (N.B.: These willows were cleared in December 1986 — refer report above). The last stretch of river leading up to the Little River access bridge has maintained a good perch fishery and fly casting water.

14. **Lake Forsyth Fish Kill, 30-31 October, 1986**
(By Mr G. A. Eldon, M.A.F., abridged)

At 1100 hours Friday 31 October, 1986, while on leave, I discovered a number of dead trout stranded in shallow water at the North-West end of Lake Forsyth. Most fish were recently expired; eyes and gills had been removed, presumably by gulls which were seen loafing in the vicinity, but the flesh was firm and there was no odour. A few fish had been dead rather longer, and three were still alive. Other species were unaffected. I collected 13 fish and counted a further 28 or 30. Weights ranged from an estimated 1 kg to a verified 3.2 kg. The lake level was the lowest I have ever seen, and I expected to find the outlet open. However, the bar was closed, though with salt water filtering into the lake (at 1200 hours, about 2 hours 49 min before high tide). The Wairewa County Council opens the lake to the sea when the lake water levels become unacceptably high. County advise that the bar had been breached on the 21 October, when the lake level was 8'3". On the 23 October the level was 2ft. and on the 24th it was 1 foot and still running out. The bar was reported closed on the 28th, with the water level at 2ft, but on the 30th the level was down to 1 foot again. The water level gauge is at the outlet (the south-west) end of the lake.

On the 28 October, in the morning, a coach party of local body officials on their way to Akaroa remarked on the beauty of Lake Forsyth and several people took photographs of it. On the return journey in the afternoon the same people were astonished to see the area they had photographed reduced to an extensive mud pan. The phenomenon was the object of comment and conjecture (D. Maindonald, pers comm.). During the morning of the 28th, wind conditions at Christchurch and Lyttelton were variously recorded at 5-20 Kts SW. In the afternoon they were 5-10 Kts NE. In other words, winds which could have pushed water to the head of Lake Forsyth in the morning, were reversed and could have pushed the water to the opposite end in the afternoon.

Throughout the 29th and 30th, winds continued mainly from the NE, at "light" to 15 Kts, although Christchurch Airport recorded SW winds at 0600 and 0900 hours on the 29th. From the foregoing data, the following conclusions and conjectures can be drawn

1. At the end of October Lake Forsyth was at an uncommonly low level following the mechanical opening of the mouth on the 21st.

2. Some agency was strongly affecting water level at the NE end, and as tides were not abnormal, it seems likely that wind was responsible.

3. Trout stranded were in shallow water; death may therefore have taken place some time after the event which caused the stranding. A vast area of the NE end of Lake Forsyth is of a uniform mud pan, with no hollows or channels of deeper water in which large fish could find refuge in the event of a sudden drop in water level. With the waters of Little River dissipating into a broad unchannelled area, trout could exhaust themselves searching for refuge. This is what appeared to be happening to the remaining live fish observed on the 31st.

4. No other species of fish were observed to be in distress; bullies, inanga and eels were observed alive and apparently normal.

5. It is concluded that with the lake in an uncommonly low condition, trout moved into mudflats covered to an acceptable depth when water banked up at the NE end under the pressure of moderate SW winds. That when these winds reversed during the afternoon of October 28th, the water receded and left the large trout with insufficient depth to manoeuvre properly. These fish subsequently expired, probably during the later afternoon and evening of the 30th October.

Conclusion

The work of the Fish Management Committee has continued at full pace during the year, and in line with this, it is as well to remember that the efforts to conserve water and habitat, and improve fish stocks are uppermost in our minds. At the same time your Society is endeavouring to make sure that anglers retain access to the water. The deterioration in low country rivers and streams due to abstraction of water for irrigation, has caused us to redouble our efforts to save everything possible in the high country. This brings to mind the importance of our input to such schemes as the Ryton Station tourist project mentioned earlier. There could be other such schemes, and indeed there are others, mooted or underway. It is also necessary for us to save what we can of low country rivers, and also, as in the case of the Ashley for example, work with the Catchment Board etc., to reverse the decline and get more water back in the system. It has been pleasing to arrive at a satisfactory arrangement for the use of Silverstream and we look forward to the continuation of this advance.

I extend my thanks to N.C.A.S. staff and Councillors, the Angling Clubs, volunteers, M.A.F. and other Government Departments and Local Government Bodies who have assisted me during the year. We wish anglers a good season, and suggest that the returning of some fish to the water will help to improve stocks.

M. E. SNOWDON,
Chairman.

LAKE COLERIDGE OPENING WEEKEND CREEL SURVEY, NOVEMBER, 1986

(B. F. WEBB, SECRETARY)

Introduction:

The angling season in the North Canterbury high country waters defined as all high country lakes lying west of the Southern Alps foothills and all rivers and streams flowing into those lakes, commences at midnight on the 1st Saturday in November. This opening weekend has traditionally been used by anglers as a time to congregate at a number of high country lakes to welcome in the new season which then extends to 30th April of the following year. This concentrated angling can make up to 50% of the total fishing pressure for the season, and thus provide an excellent source of information and data and give an opportunity to carry out angler surveys. Such surveys have been conducted over the past 8 years at Lake Coleridge, North Canterbury's largest high country lake being part of the Rakaia River catchment (Figure 1). It is a lake containing three main angling fish species, quinnat salmon, rainbow trout and brown trout in order of catchability; is a deep body of water to 200 metres; is exposed to extremes of weather from the north-west, south-west, south and south-easterly quarters; and is fished predominantly by threadline from shore or boat fishermen, although fly fishing for trout is popular along the eastern-central shoreline.

Continuing the series of angler surveys at Lake Coleridge, an opening weekend census occurred over 1st and 2nd November 1986 to: record the number and composition of the catch, the total number of anglers, and those successful, detail the biological fish data and total time spent angling, check for the presence of any tagged fish, and record general observations as they may occur. This survey was the fifth consecutive one since 1982, and seventh since 1978, with all results being published in the N.C.A.S. Annual Reports since 1979. This report details the results of the 1986 survey including the catch data, catch per time of day, angler effort and length-frequency and length-age analyses of the fish landed. Since complete data were not recorded for each fish, the fish numbers used in the respective sections below may vary considerably from the total fish numbers landed for each species.

Catch Data:

As recorded with the previous surveys, Saturday and Sunday were treated as survey days for the purposes of recording the number of anglers since it was not possible to distinguish the data of those anglers who fished either both days or only one, while a number of anglers fished both from a boat and from the shore. It was also unavoidable that a number of anglers may have been interviewed twice in one day, despite being asked if he/she had been interviewed previously —it was impractical to keep track of every angler all day. Thus, along the picket fence area the **total** number of anglers was based on the morning count only for both Saturday and Sunday, as the afternoon count was composed almost entirely of the same anglers. .

Table 1 records the main fish catch for the weekend, 1st and 2nd November 1986. A total of 579 anglers were checked during the two-day survey, of whom 306 (52.84%) were successful in catching a total of 674 fish: salmon = 535 (79.3%), rainbow trout = 112 (16.6%), brown trout = 27 (4.0%). Catch per successful angler was 2.2 fish, and 1.16 fish for the total anglers checked, which was a better overall result than even the excellent 1982 and 1985 openings. All locations, with the possible exception of the Scamander Bay to Ryton Peninsula area, had plentiful fish numbers landed, with the boats, picket fence, and Harper

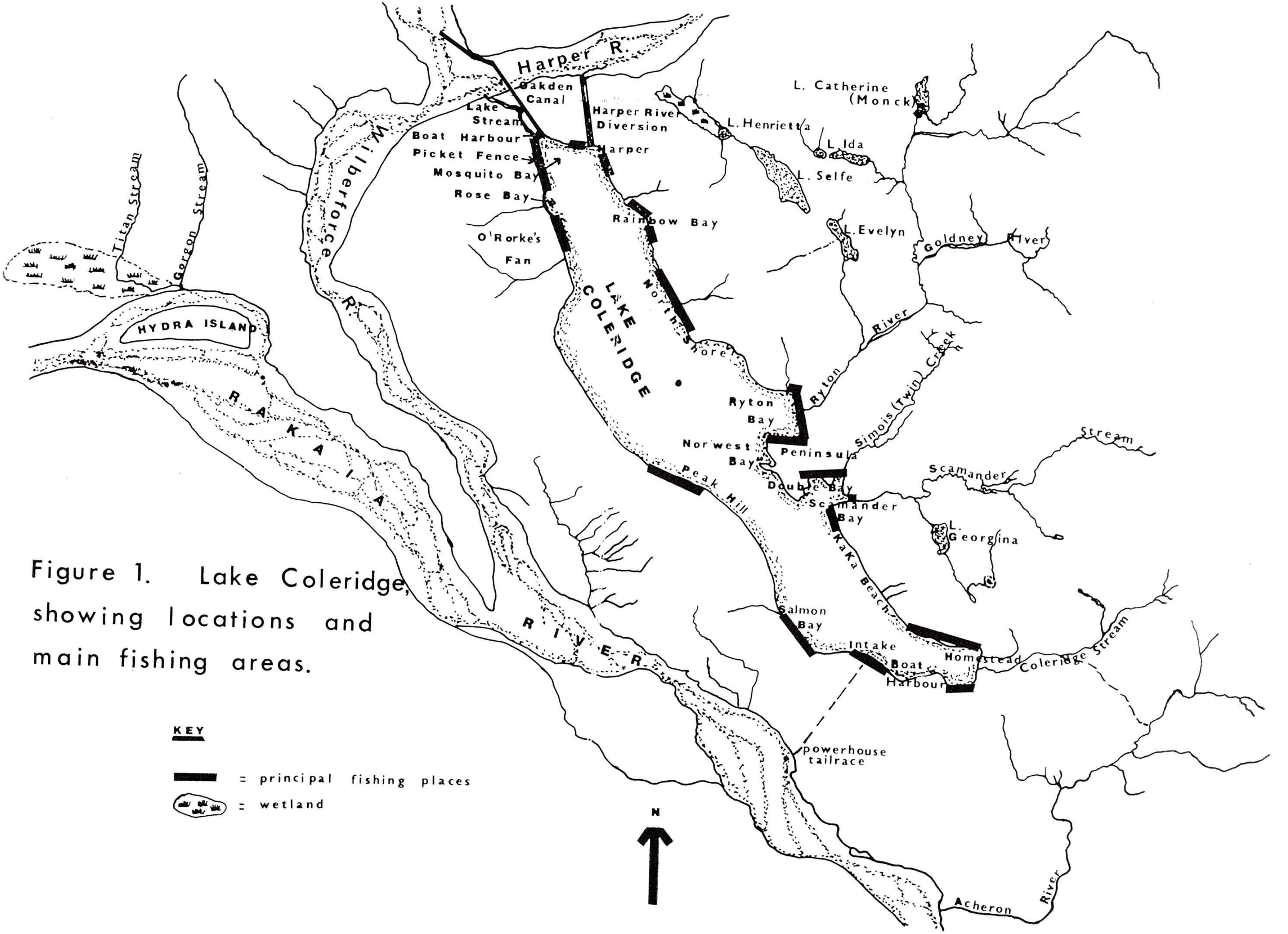


Figure 1. Lake Coleridge, showing locations and main fishing areas.

areas being particularly successful, the latter two surprisingly so considering the very high lake levels. All areas were covered by Society Staff, Councillors and volunteer survey personnel, who indicated predominantly 80-90% coverage of anglers.

Comments:

Another excellent opening weekend, with over 50% of anglers successful. Lake level was at high (full) lake, about 0.6 metres higher than for 1985, and had appeared to have been largely stable for several months going by the algae growth on some of the shoreline rocks. Comments from most areas indicated a slightly reduced angling pressure from past years, but with fish numbers slightly higher than for 1985—several bag limits (10 fish) were caught on 2nd November (Sunday morning) along the picket fence. Two main fishing differences, to past years, occurred:—(a) the weather—calm during the Saturday morning changing to a sudden Nor-west wind change at 1145 hours; strong nor-west winds Saturday afternoon persisting through Sunday 2nd — calm weather lead to relatively poor fishing in the north-north-west region of the lake during Saturday morning but good for the boats. Once the nor'-wester arrived, the lake quickly became too rough for most boats, and for most anglers along the eastern shore of Ryton to Scamander, while no survey personnel could reach O'Rorkes fan to record catches. (b) The second difference was the small size of the salmon landed from all over the lake, there being about a 5 cm reduction in average salmon length, to those recorded in 1985. Why this should be is not known; the salmon also appeared to lack condition.

Most locations reported a large number of undersized or small fish returned, or fish lost from the lines, salmon and rainbow trout predominantly. During the morning of Saturday 1st, at the picket fence, dozens of small fish were returned, mainly salmon, with several anglers catching 5 — 6 such fish consecutively much to observers amusement. The releasing and loosing of fish also occurred on the Sunday.

Of the 535 salmon caught and recorded, only 2 (0.0037%) were tagged (adipose fin—clipped), being part of the 10,234 tagged yearlings released by M.A.F. in June 1984, and thus in their 4th year (i.e., 4-year old fish). Even these displayed a reduction in size expected, one being 45.0 cm and 900 grams which equated in size with a 3-year old fish found a year previously in November 1985.

The boat figures included all vessels checked, not only on the water but also from the various shoreline locations as well. Analysis of the boats gave:

— No. of boats checked for the 2-day period = 70
— No. of boat anglers recorded = 165
— Average angler per boat = 2.35
— Average recorded catch per boat angler = 1.76 fish

Owing partly to the weather and the large number of boats present during Saturday, and the lack of survey personnel at the northern boat harbour, an estimated 20 extra vessels (counted from the picket fence shoreline) were not checked for catch or success rate, while during Sunday morning an estimated further 10 vessels fished in this area. Assuming, however, similar catch figures, as above, a further 70 anglers could have landed about 123 fish.

Weather conditions prevailing over the weekend were:—

1/11/86: **a.m.:** 0600—low fog, calm, cool. Fog cleared by 0700, day fine and warmed up during morning; lake water calm, north breeze 1-5

TABLE 1. Summary of the Catch Data for the Lake Coleridge Opening Weekend, 1st and 2nd November, 1986. B.T. = Brown Trout; R.T. = Rainbow Trout; S. = Quinnat Salmon; cm = centimetres; gms = grams. Figures in parentheses after length and weight = fish numbers.

* Boat check figures incorporates all the data recorded from boats, from all areas combined.

Location	Date	Fish Species	Total No. of Fish	Average Fish Length (cm)	Average Ungutted Fish Weight (gms)	Total No. of Anglers Checked	No. of Successful Anglers	Comments
Intake — Salmon Bay area	1/11/86	S.	21	39.6 (16)	561 (13)			
		R.T.	12	48.6 (11)	1172 (9)			
		B.T.	8	52.7 (8)	1512 (8)	50	22	
	2/11/86	S.	9	39.0 (5)	511 (5)			
		R.T.	2	57.5 (1)	1600 (1)			
		B.T.	0	0	0	7	6	
Scamander-Double Bay + Ryton Peninsula area	1/11/86	S.	0	0	0			
		R.T.	10	53.4 (10)	1475 (10)			
		B.T.	0	0	0	12	6	
	2/11/86	S.	0	0	0			
		R.T.	0	0	0			No fishing at Ryton Bay or on Peninsula as too windy.
		B.T.	0	0	0	5	0	
Ryton Bay—North Shore area	1/11/86	S.	29	40.4 (20)	595 (11)			
		R.T.	27	52.0 (22)	1507 (19)			
		B.T.	9	52.6 (3)	1366 (3)	107	35	
	2/11/86	S.	3	38.0 (3)	550 (2)			
		R.T.	0	0	0			
		B.T.	1	54.0 (1)	1250 (1)	23	3	

Harper River area	1/11/86	S.	27	36.8 (6)	491 (6)	35	22	
		R.T.	8	52.7 (7)	1350 (7)			
		B.T.	0	0	0			
	2/11/86	S.	19	38.8 (4)	525 (4)	16	7	
		R.T.	0	0	0			
		B.T.	0	0	0			
Picket Fence area (from Boat Harbour to Rose Bay)	1/11/86	S.	75	38.5 (60)	545 (56)	88	43	
		R.T.	2	51.5 (2)	2000 (1)			
		B.T.	3	59.0 (3)	1725 (2)			
	2/11/86	S.	96	38.9 (75)	566 (75)	49	25	
		R.T.	0	0	0			
		B.T.	1	60.0 (1)	1400 (1)			
O'Rorkes Fan	1/11/86	S.	15	38.5 (13)	611 (13)	22	13	
		R.T.	5	44.6 (3)	1033 (3)			
		B.T.	0	0	0			
	2/11/86	S.	0	0	0	0	0	Lake too rough to transport survey personnel to area
		R.T.	0	0	0			
		B.T.	0	0	0			
Boat Checks *	1/11/86	S.	226	38.1 (168)	558 (142)	158	117	
		R.T.	46	47.3 (40)	1256 (35)			
		B.T.	5	51.2 (4)	1386 (3)			
	2/11/86	S.	15	0	0	7	7	Fish head and gutted
		R.T.	0	0	0			
		B.T.	0	0	0			

kts from 0715 with water calm to rippled. Between 0815 to 1145, 3-5 kt S.W. breeze — water calm to rippled. At 1145 — a sudden N.W. wind change 8-15 kts, water 6in wavelets to 1 ft. waves and choppy. From 0900 0/8 cloud.

p.m.: From 12 noon, N.W. wind 20-40 kts; 0/8 cloud, mild to warm; waves 1-3 feet, white caps. These conditions continued all afternoon to 2000 hours — air temperature became cooler with setting sun.

2/11/86: **a.m.:** From 0600 hours, 7/8 cloud; N.W. 15-30 kts, cool; water 1-2 ft. waves with white caps.

Survey ended during Sunday afternoon as anglers went home. Comments from anglers and survey personnel indicated brown and rainbow trout in surprisingly good condition considering the spawning season had only completed 1-3 months previously.

Angler Effort:

During the survey 575 anglers (99.3% of the total number checked) gave an indication as to the number of hours they had spent fishing, plus the number of fish caught if any. The list below tabulates the combined 2-day totals of the number of fish caught and number of angler hours, for each location, with the fish caught per hour and per angler.

	Area	Total No. of Fish Landed	Total No. of Angler Hours	Total No. of Anglers	Fish per Angler Hour	Fish per Angler
1986:	Intakes	47	186.25	55	0.25	0.85
	Scamander	10	47.0	17	0.21	0.58
	Ryton Bay	61	376.5	128	0.16	0.47
	Harper	54	210.75	51	0.25	1.05
	Picket Fence	177	773	137	0.22	1.29
	O'Rorkes Fan	20	53	22	0.37	0.9
	Boats	292	697	165	0.41	1.76
	TOTALS	661	2343.5	575	0.28	1.14

Overall the 1986 season was more successful, in fish caught per total anglers checked and per angler hour, than for 1985, but still that large fluctuation in catch effort between locations, noted in previous surveys (Webb 1984, 1985, 1986), was again evident, caused largely by variable weather patterns. The boats and picket fence anglers had the best results, while the catch rate per successful angler of 2.2 fish, and 52.84% of anglers being successful, exceeded expected (mean) values of 1.8 and 43% respectively. A high, stable lake level may thus be required for Lake Coleridge, if future successful years are to be expected. The catch rate of 0.28 fish per hour however, was still below the 0.31 fish per hour for 1979 and the mean of 0.36 fish per hour one would expect from Lake Coleridge if the fishery was unchanged over the last 35 years.

Catch per Time of Day:

A total of 207 anglers (67.6% of successful anglers) gave an indication as to the time of day each fish was landed, covering 416 fish or 61.72% of the total fish numbers recorded. The data was sub-divided into six, four-hourly intervals, with the fish numbers being totalled for the two-day period since fishing activity was so variable each day. These data are listed below with the figures in parentheses being percentages:—

Time of Day (Hours)	Fish Numbers
0000-0400	6 (1.4)
0400-0800	196 (47.1)
0800-1200	169 (40.6)
1200-1600	19 (4.5)
1600-2000	22 (5.2)
2000-2400	4 (0.9)
TOTAL	416 (99.7)

While the majority of fish were again caught between 0400-1200 hours, as with past surveys, an increase number of fish during November 1986 were landed during the 0800-1200, and 1200-2000, hour periods, reflecting the changing weather from calm on Saturday to strong nor-westers for the remainder of the survey. Most fish are caught by boats, or in the northern half of the lake, both being very susceptible to the weather—fishing success relationship. For the afternoon of 1st November (Saturday) at the picket fence, 32 anglers fished for 3½ hours each for a total of 19 fish, while after 1900 hours only 5 more salmon were landed, 2 after 2000 hours. All fish caught after 1600 hours came from anglers at the Ryton, picket fence or in boats. By Sunday 2nd, not many anglers were at the intakes or eastern shore of Ryton and Scamander owing to the strong nor-west wind which also prevented most boats from venturing out.

Sex Ratio:

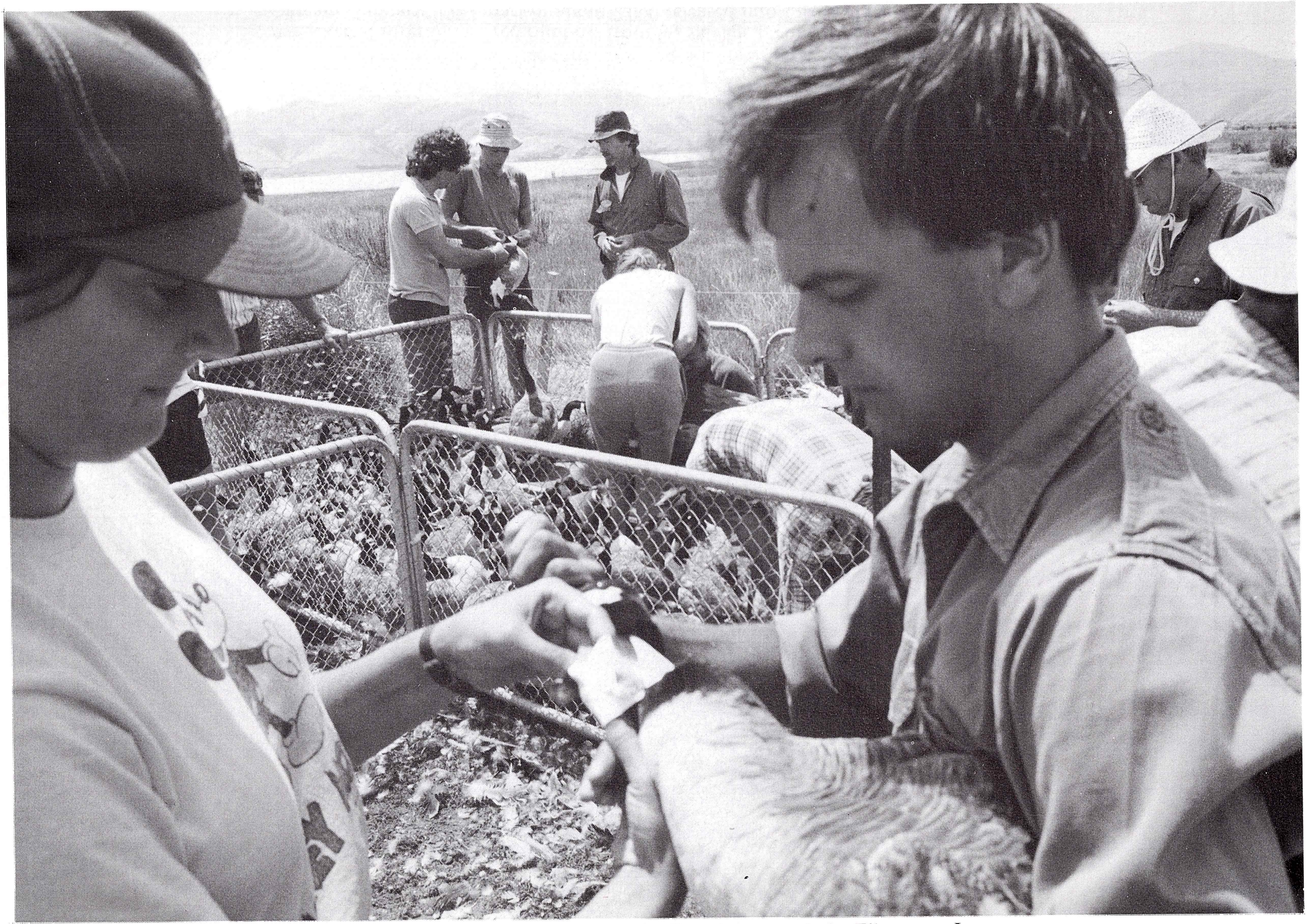
A total of 242 fish had their sex noted during the survey, giving:—Salmon = 38 males, 145 females; rainbow trout = 8 males, 34 females; brown trout = 10 males, 7 females.

Length - Frequency:

The 1986 length-frequency distributions for salmon, rainbow trout and brown trout, are illustrated in Figure 2. Statistical comparisons of the length-frequencies with past annual data for all three species, were made using the Analysis of Variance (F) test, to determine whether significant difference exists or not between various year-length measurements, and therefore fish sizes within the three populations in Coleridge, the hypothesis being that no significant difference in fish length had occurred since 1978. The results are as follows (d.f. = degrees of freedom; P = probability that the year samples were similar or different):—

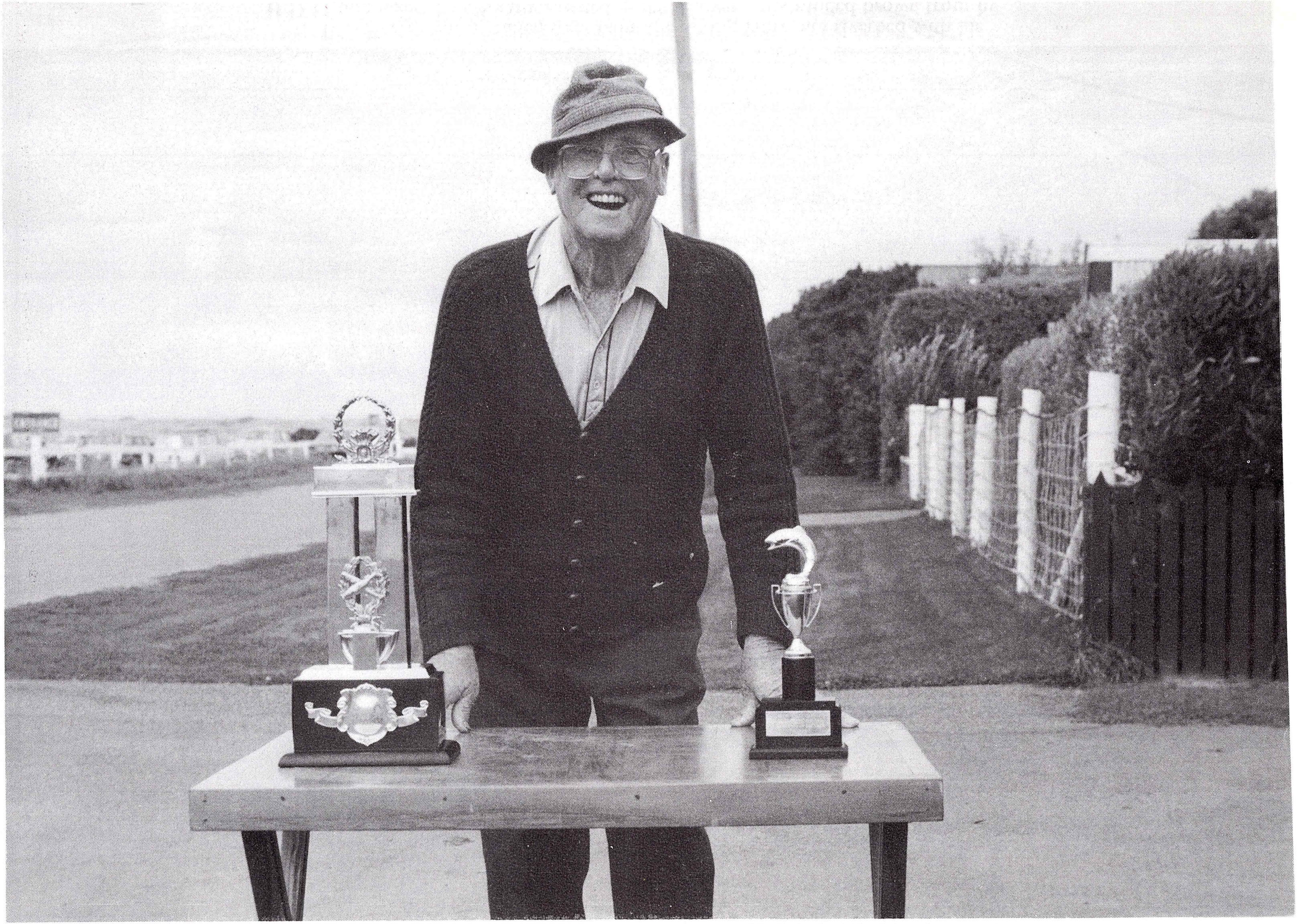
(a) Salmon—

Webb (1986) reported that analysis of the 1978 to 1984 length-frequencies showed no significant difference for salmon in Lake Coleridge, while a comparison between 1984 and 1985, showed a significant difference between the 44.97cm and 43.97 cm mean lengths respectively. The mean length for salmon from the 1986 survey was 38.42 cm, and when analysed with the 1985 data, gave



Fitting a neck collar (white over red) to a Canada goose, Lake Ellesmere. January 1987, 1 of 1,000 so tagged: Miss Teri Meis, research student, assisting on left. (F/O R. Novis).

A bucket of several hundred rainbow trout fry salvaged from the Lake Lyndon inlet stream, January, 1987, part of about 2,000 released into Lakes Ida and Little Ida. (F/O R. Novis).



The two N.C.A.S. trophies; with Mr. Roger Foote, N.C.A.S. Life Member, and left trophy donor; 21/3/87. (Secretary).

Mr. E.L. Early clearing fallen trees from the drying Hororata riverbed with his H.D.11 bulldozer. This greatly assisted in the recovery of stranded brown trout by Society field staff; February 1987. (F/O D. Maindonald).

F = 443.5, d.f. = 1:789, P = less than 0.005, indicating the significant difference between the two length frequencies. This supported the observation noted under **Catch Data** above concerning the small salmon size for 1986; salmon were 5 cm on average smaller than for 1985 and 6cm on average less than for the other 5 surveys since 1978. Why there should be this sudden big decrease in salmon size, is not known. However, having two consecutive years with decreasing means, may well be a warning signal that something is not right with the salmon population in Coleridge.

(b) Rainbow Trout—

Comparisons of the length-frequencies from the six previous surveys (Webb 1984, 1985, 1986) showed a similarity between 1979 and 1985 lengths (45.86 cm and 43.82 cm), and between 1978, 1982, 1983, 1984 length data (50.0 cm 49.02 cm 50.83 cm, 49.4 cm respectively). For 1986, the mean length was 49.59 cm, which, for comparative purposes, was analysed with the 1982 data as the most appropriate means of the 4 above. The statistical analysis gave F = 0.162, d.f. = 1:143, P = greater than 0.01 indicating no significant difference, not only between the two means tested but also the other 3 years having comparable mean lengths. Again, this result indicates that the mean length of rainbow trout in Lake Coleridge varies considerably between the years, which will make it more difficult in the future to know just when the population (and its measureable parameters) is naturally fluctuating or under threat.

(c) Brown Trout—

Webb (1985, 1986) has presented the mean length and standard errors of the mean, fish numbers, and sample standard deviations of the length distributions, for the surveys during the six years 1978, 1979, 1982, 1983, 1984, 1985 and showed that for the first five sample means no significant difference existed between them. A further analyses of these data, including the 1985 and 1986 surveys, gave F = 0.53, d.f. = 6:154, P = greater than 0.1, again proving that no difference existed in the 7 sample means tested which ranged from 49.9 cm to 55.66 cm. Brown trout, therefore, appears to have a more stable population over the years when compared to the salmon and rainbow trout. Whether such results give an index, or degree, of vulnerability of the three fish species to possible changes in the lake environment, remains to be seen.

Length-Weight:

A number of trout and salmon during the angler survey were measured to the nearest 0.5 centimetre (cm) and weighed to the nearest 20 grams on 5 kg spring balances, with the fish being recorded as being either gutted or ungutted; only ungutted weights have been used in the analyses below. All lengths and weights were transformed to the base 10 logarithm, and the resulting ordinary regressions converted to the Geometric (G.M.) regression by the method described by Ricker (1973):—n = number of fish in sample; r = coefficient of correlation (the closer r is to 1 the greater the correlation between the two variables); t = Student's distribution t-test for significance between sample means and regressions coefficients; ay and byx = the y-intercept and the slope, respectively, of the straight line relating the variables Y (weight) and X (length) when plotted on a graph, with byx being the regression coefficient (+/– = the standard error); d.f. = degrees of freedom (a statistical quantity used to find the probability); P = significance probability of the t-test, whether the comparisons were significantly different or not; W = fish weight (grams); L = fish length (cm); log = base 10 logarithm.

(a) **Quinnat Salmon:** Analysis of the length/weight data from the 1986 creel census gave:—

n : 326
r : +0.8323
ay : –0.9251 (+/–0.2682)
byx : 2.3149 (+/–0.1693)
Ordinary regression : log W = 2.3149 log L – 0.9251
GM regression : log W = 2.7813 log L – 1.6637

with the G.M. exponential form being W = 0.02169 L 2.7813. Webb (1986) showed that salmon length-weight relationships can fluctuate considerably between the years indicating variable body condition usually associated with the available food supply. The G.M. regression coefficient for 1986 of 2.7813 was compared with the 1983 regression of 2.7347 giving t = 0.4, d.f. = 519, P. = 0.7–0.6 indicating no significant difference between the two yearly samples, and thus conversely, a significant difference from the other five surveys since 1978. Many anglers during the 1986 survey did make the observation that, in their opinion, the small salmon were only in **average** condition, average being byx about 2.75 as opposed to poor condition of 2.45 (in 1984) and excellent condition of 2.9 (in 1978-79, 1982, 1985).

(b) **Rainbow Trout:** The analysis of length-weight data for the 1986 creel census gave:—

n : 85
r : +0.9305
ay : –1.1488 (+/–0.3599)
byx : 2.5071 (+/–0.213)
Ordinary regression : log W = 2.5071 log L – 1.1488
GM regression : log W = 2.6943 log L – 1.4654

with the G.M. exponential form being W = 0.03424 L 2.6943. Webb (1986) presented the five byx coefficient figures for the surveys since 1978, and showed that comparing the lowest (1983) and highest (1985) byx figures gave a borderline significance (byx = 2.5977 and 2.8566 respectively). Since the 1986 figure of 2.6943 fell between these two extremes, t-tests were carried out to compare the 1986 figure with 1983 and 1985. The results were:— **1983 - 1986:** t = 0.51, d.f. = 135, P = 0.7 – 0.6, and **1985 - 1986:** t = 1.028, d.f. = 148, P =0.4 – 0.3; in both cases no significant difference occurred between the samples. Thus, rainbow trout in Lake Coleridge can normally be expected to fluctuate in body condition year to year but generally be of reasonable quality, reflecting the recovery period after the spring spawning season. Incidentally, the rainbow trout again managed to surmount the Harper control gates during the 1986 spawning migration, eliminating the need for a fish salvage operation.

(c) **Brown Trout:** A total of 18 fish were measured for length-weight during the 1986 survey and gave:

n : 18
r : +0.9054
ay : –1.5704 (+/–1.1813)
byx : 2.7295 (+/–0.6846)
Ordinary regression : log W = 2.7295 log L – 1.5704
G.M. regression : log W = 3.0146 log L – 2.0628

with the G.M. exponential form being W = 0.00865 L 3.0146. Since the 1986 byx G.M. coefficient of 3.0146 fell between the 1984 figure of 2.2726 and 1985 figure of 3.3604, t-tests for comparison gave: **1984-1986:** t = 0.74, d.f = 56, P = 0.5 - 0.4, and **1985 - 1986:** t = 0.99, d.f = 29, P = 0.4 - 0.3; in both cases no significant difference occurred between the samples. Again, these results appear to indicate that the brown trout population in Coleridge is a fairly stable one, and that any fluctuation in length-weight probably reflects either the recovery process from the winter spawning season or a variation in the food supply, year to year.

Length - Age:

Scale samples from 134 salmon, 81 rainbow trout and 20 brown trout, all fish of known length, were examined for their age-length relationships, each scale having a varying pattern of ring growth divided into wide zones (summer) and narrow zones (winter). As each fish species has an extended spawning season lasting weeks or months, a birth date has been allocated to all three species in Lake Coleridge (since 1978) to permit differentiation of each year class. For salmon this date was set at 1st June, for brown trout 1st July and for rainbow trout 1st September, these dates reflecting the approximate hatching times of the alevins which can occur over a 1-3 month period, depending on water temperature. Scales from salmon were read to the following winter age, since, with salmon only breeding once, such data could then be compared with those from fish traps which recorded the autumn spawning migration. For trout, all ages were taken to the previous winter birthdate since trout spawn several times during their life span. No attempt has been made to separate the sexes in the results below.

Tables 2 and 3 tabulate the age-length distributions for 134 salmon and 81 rainbow trout respectively, plus the mean fork length per age and the +/– standard deviations of the mean sample lengths. From the age-length proportions for each species, the total fish measured (Figure 2) can be allocated an age, giving:—

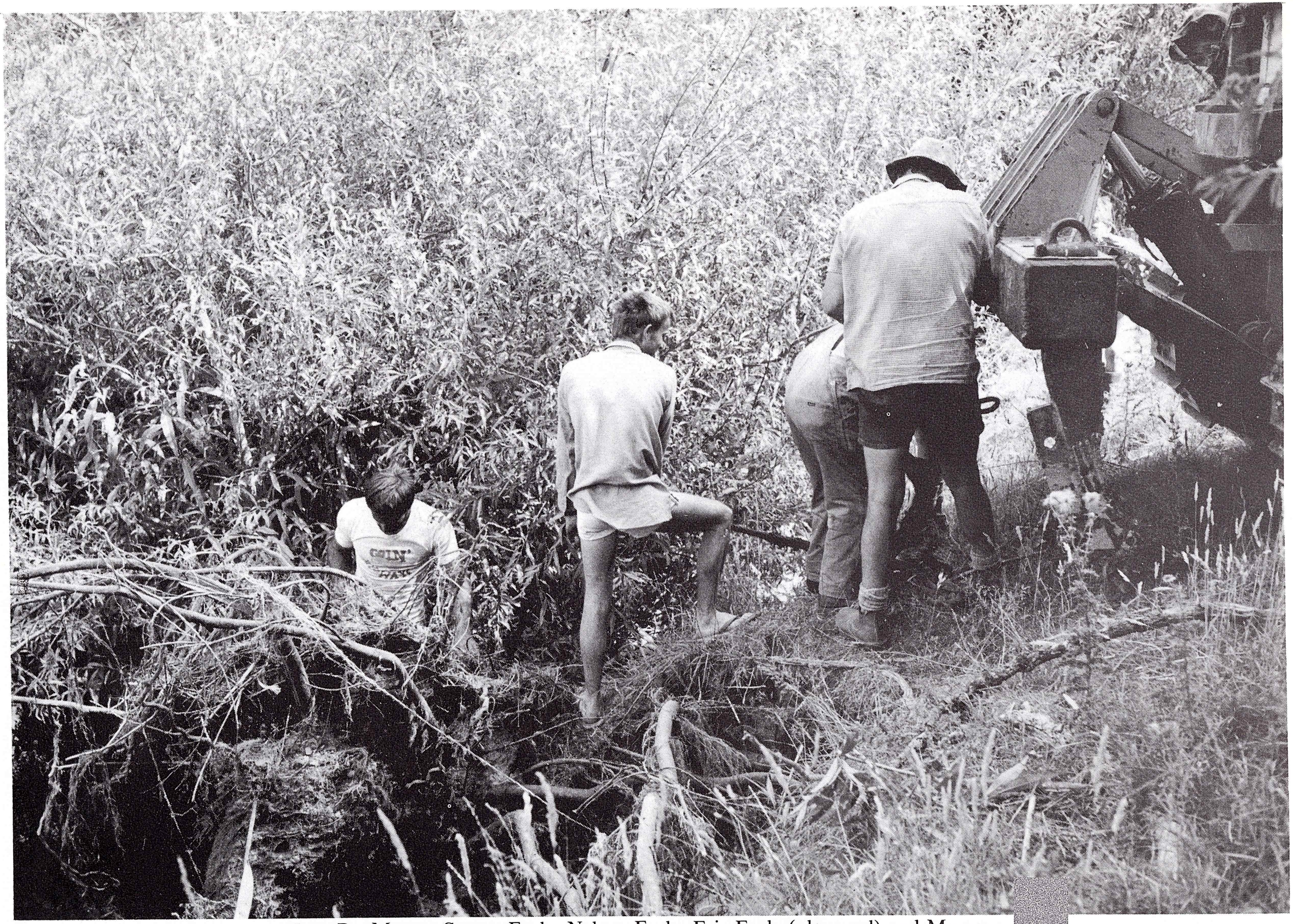
	Age (Years)					
	2	3	4	5	6	TOTAL
Salmon	4	356	10	0	0	370
Rainbow Trout	2	21	51	21	1	96

Therefore, for 1986, salmon did not fully enter the fishery until 3 years of age, and rainbow trout until 4 years, giving the survival rate (S) and total mortality coefficient (Z), between ages, as follows (Gulland 1969; 1977):—

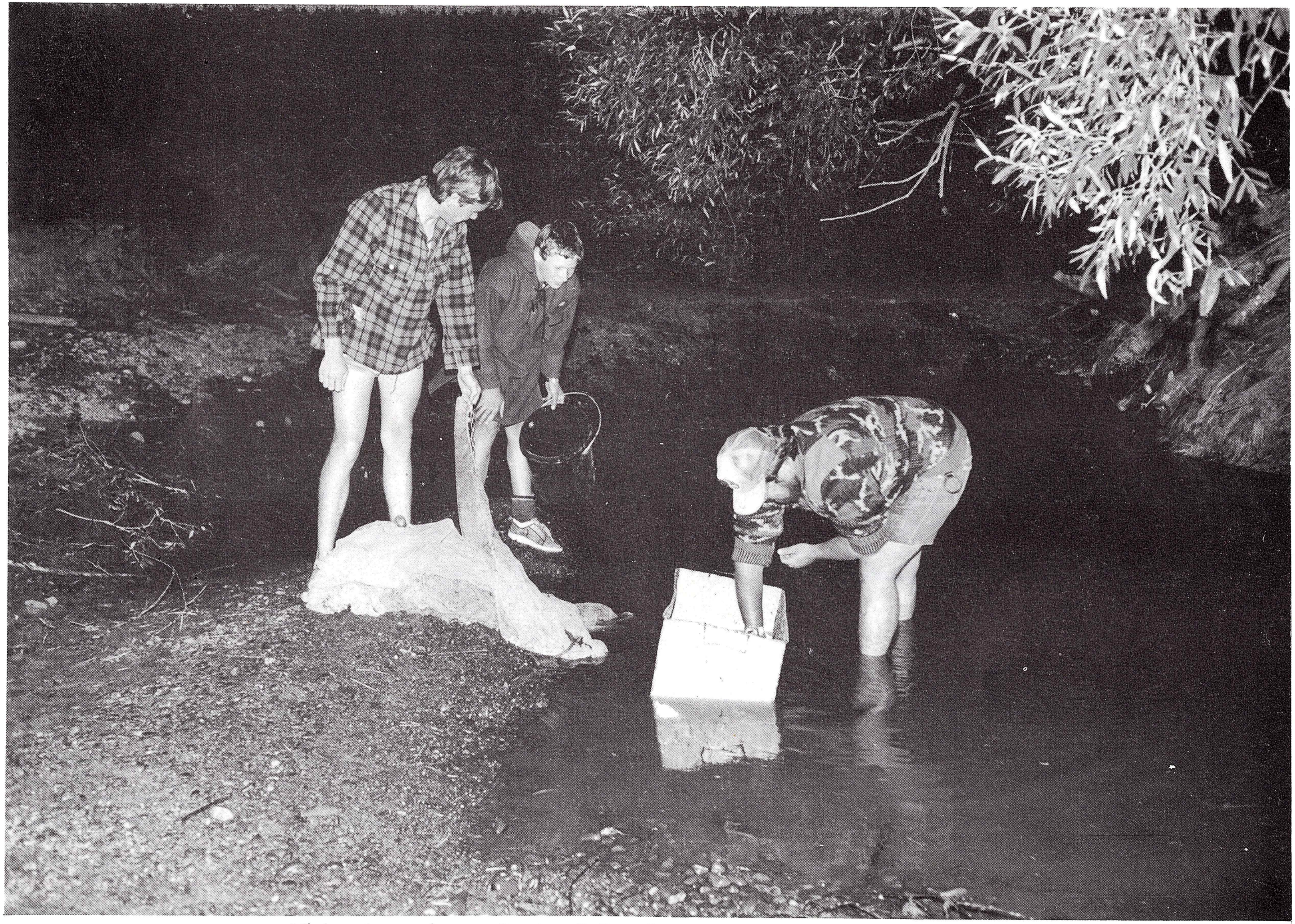
		Age (Years)		
		3/4	4/5	5/6
Salmon:	S	0.028	—	—
	Z	3.575	—	—
Rainbow:	S	—	0.4117	0.0476
	Z	—	0.8874	3.0449

TABLE 2. Age/Length distribution for 134 quinnat salmon, 1986 Lake Coleridge Opening Weekend angler survey. F.L. = Fork length (cm); S.D. = standard deviation (n-1).

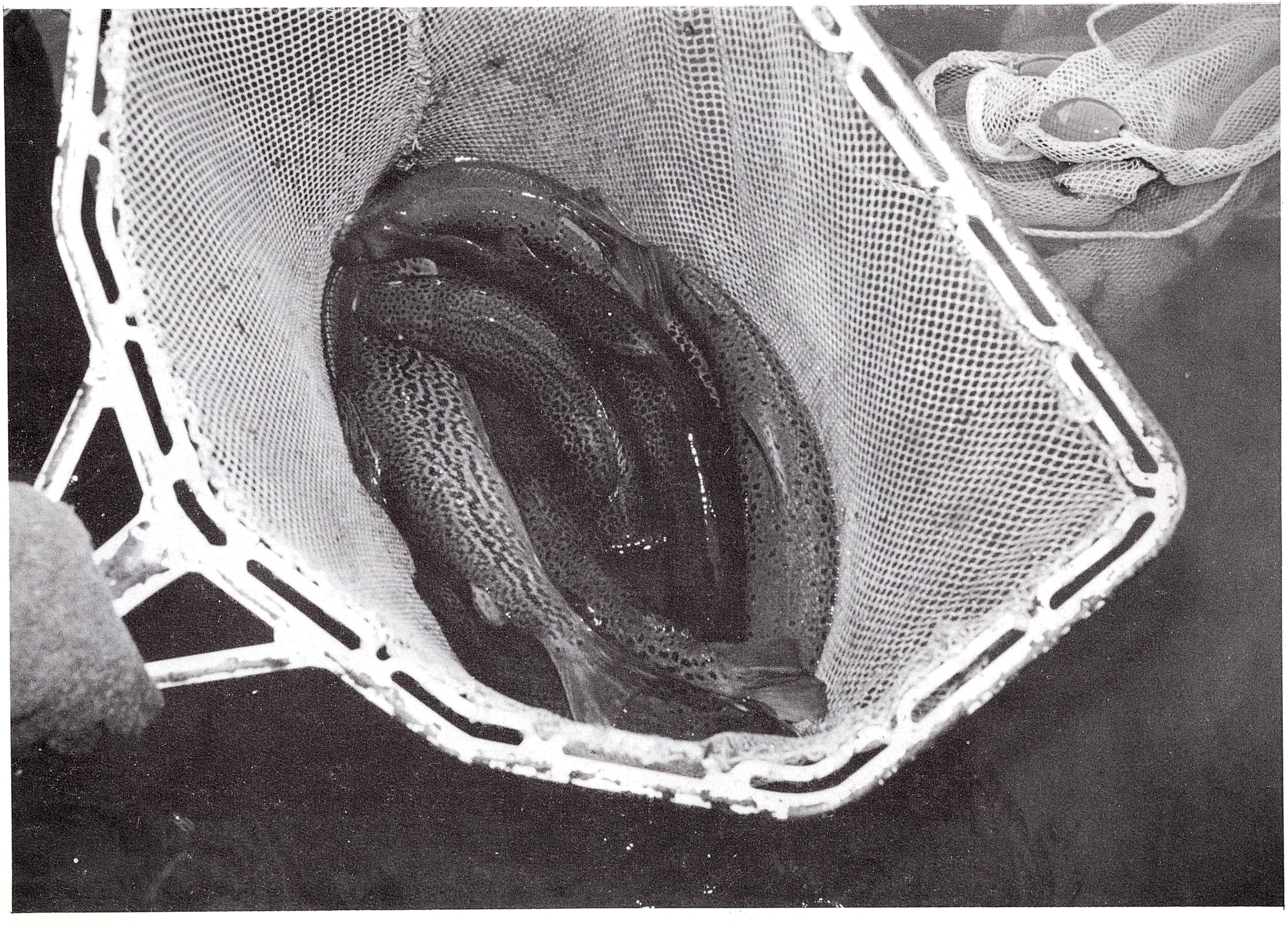
LENGTH (cm)	YEARS 2	3	4	TOTAL
29	–			–
30	1			1
31	–	1		1
32	–	1		1
33	1	1		2
34		1		1
35		4		4
36		11		11
37		24		24
38		31		31
39		21		21
40		13		13
41		9		9
42		3		3
43		2	1	3
44		–	–	–
45		–	1	1
46		1	–	1
47		3	–	3
48		–	2	2
49		–	1	1
50			–	–
51			–	–
52			–	–
53			–	–
54			1	1
TOTAL	2	126	6	134
Mean F.L.	31.5	38.4	47.8	38.7
+/– S.D.	2.1	2.4	3.7	3.3



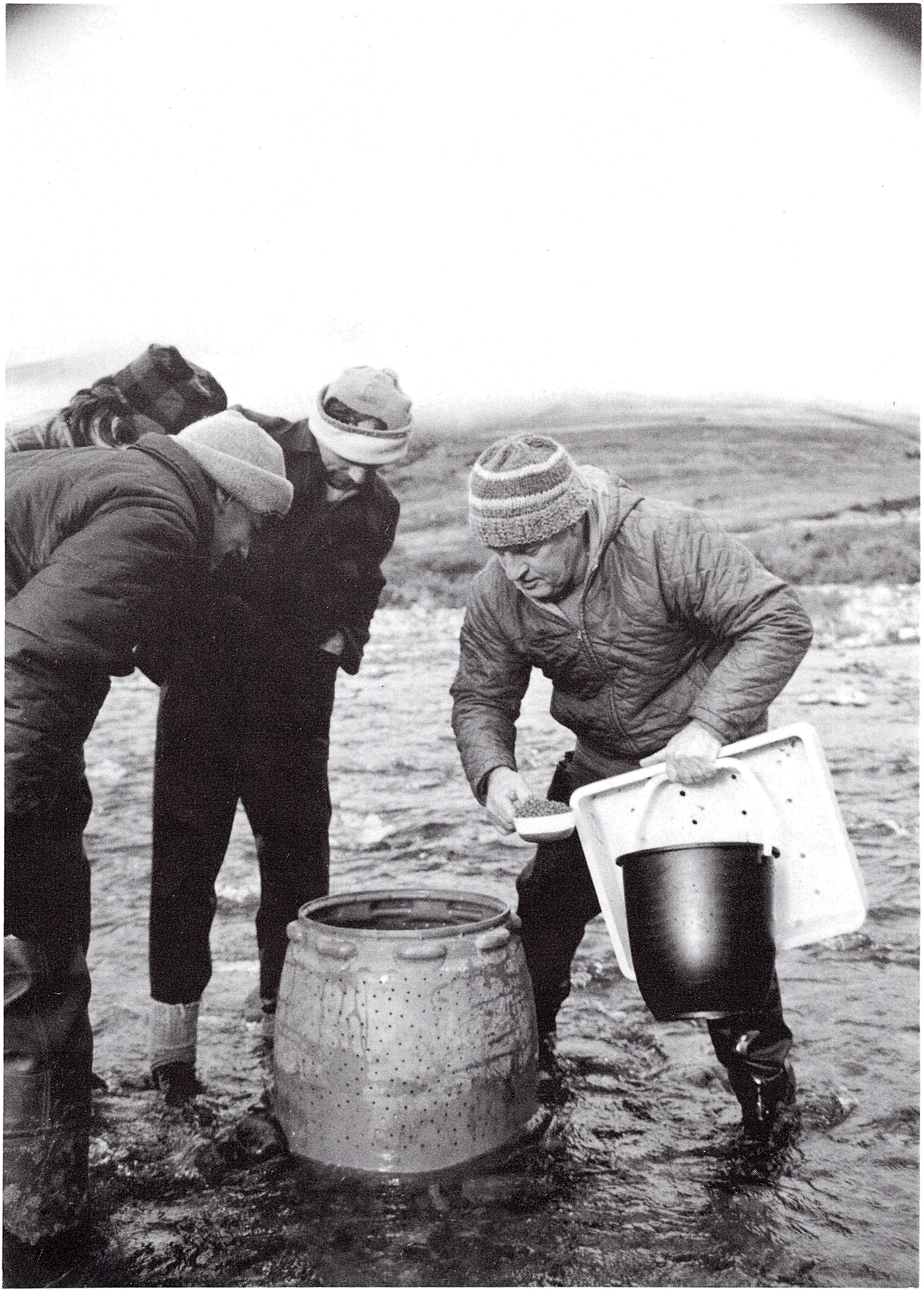
L to R:- Messrs. Steven Early, Nelson Early, Eric Early (obscured) and Murray Christie, connecting up the thick wire rope ready for dragging a very big willow up and out of the river; February 1987. (F/O D. Maindonald).



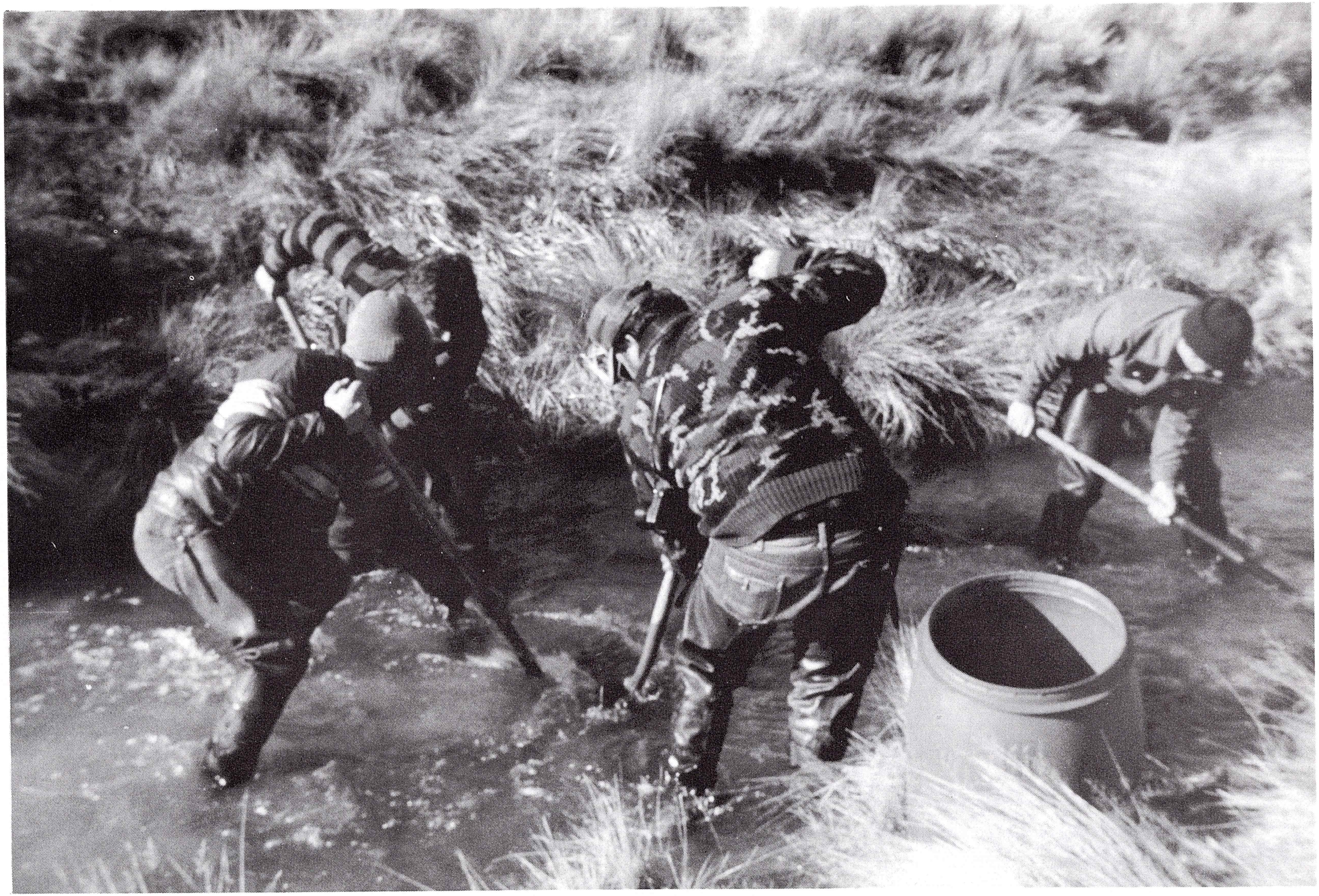
Night salvage of trout; Gordon Cullen, Graeme Knowles and Field Officer Brian Ross netting Hororata pools as the water level drops over night; February 1987. (F/O D. Maindonald).



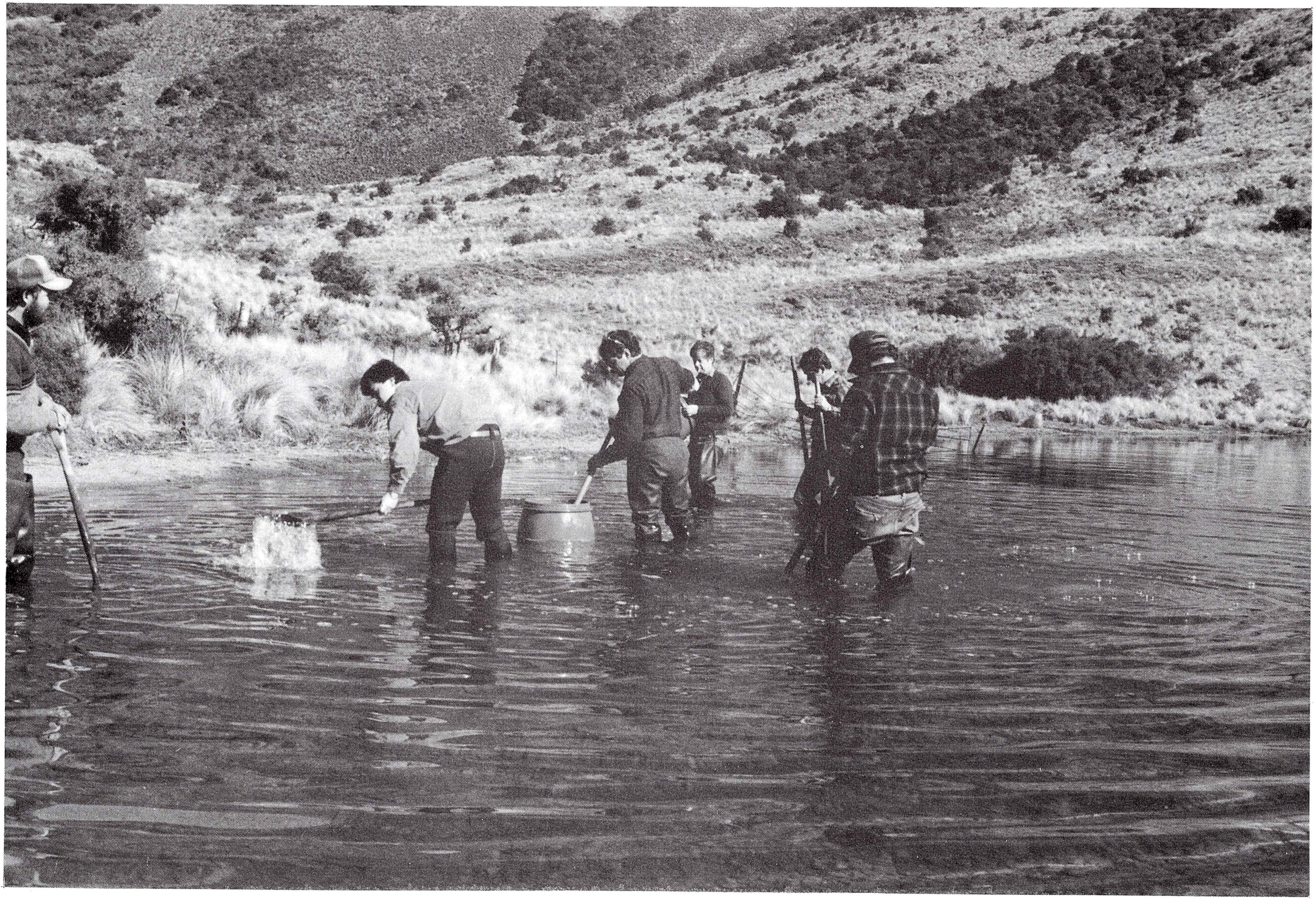
Typical Hororata Browns; February 1987. (F/O D. Maindonald).



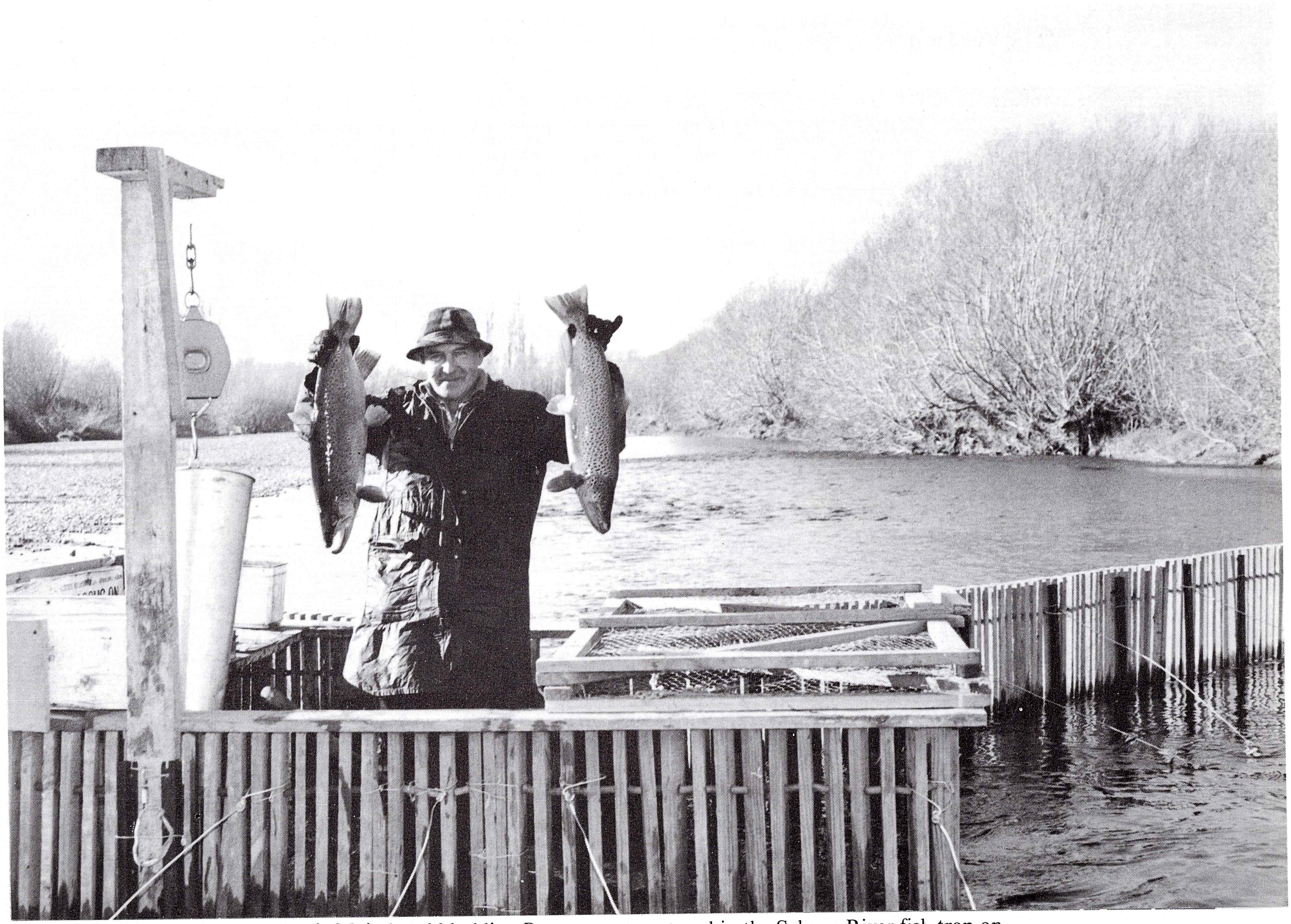
Implanting eyed salmon ova; Cass Hill Stream (Bullock Creek); 21/6/87. (Mr W.E. Hannah)



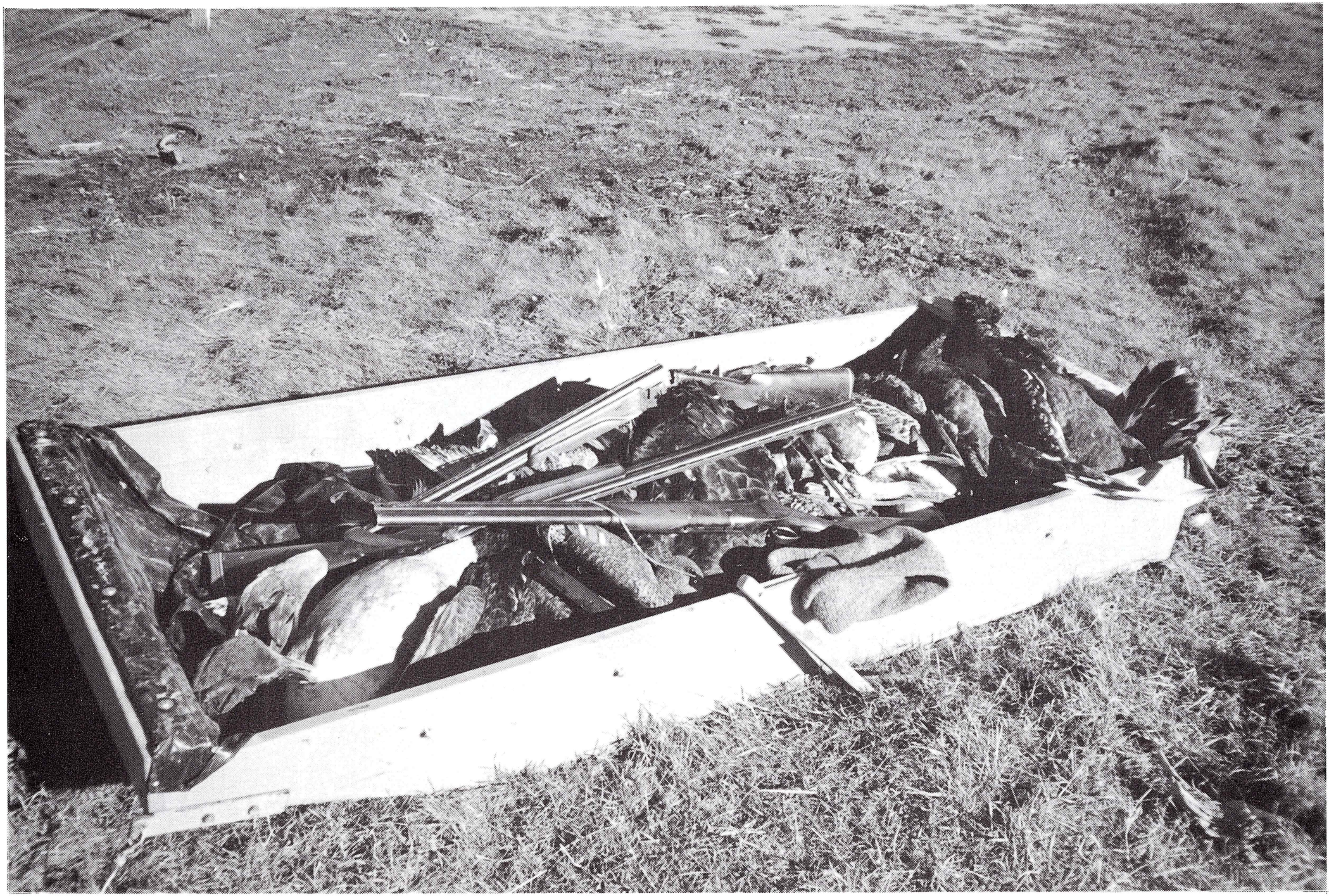
Preparing artificial redds for implanting eyed rainbow trout ova; Spring Creek,
Porter Heights area; 17/8/86. (Mr J.N. Bradley)



Implanting eyed rainbow trout ova in artificial redds; Lake Hawdon; 17/8/86.
(Mr J.N. Bradley)



Denis Maindonald holding Brown trout captured in the Selwyn River fish trap on their spawning run, June 1987; fish to be measured and floy tagged before release plus scales removed for ageing purposes. (F/O's D. Maindonald & B.J. Ross)



Opening day of duck shooting, 2/5/87; 98 ducks and Canada Geese; 6 in party, 3 of whom shot limit bags on ducks. (Mr A.B. Matravers)

Figure 2. Length – frequencies for quinnat salmon (A), rainbow trout (B), and brown trout (C) from the Lake Coleridge angler survey, 1 & 2 November 1986. n = number of fish; $\bar{x}$ = mean length, ± the standard error of the mean; s = standard deviation of the mean (n – 1).

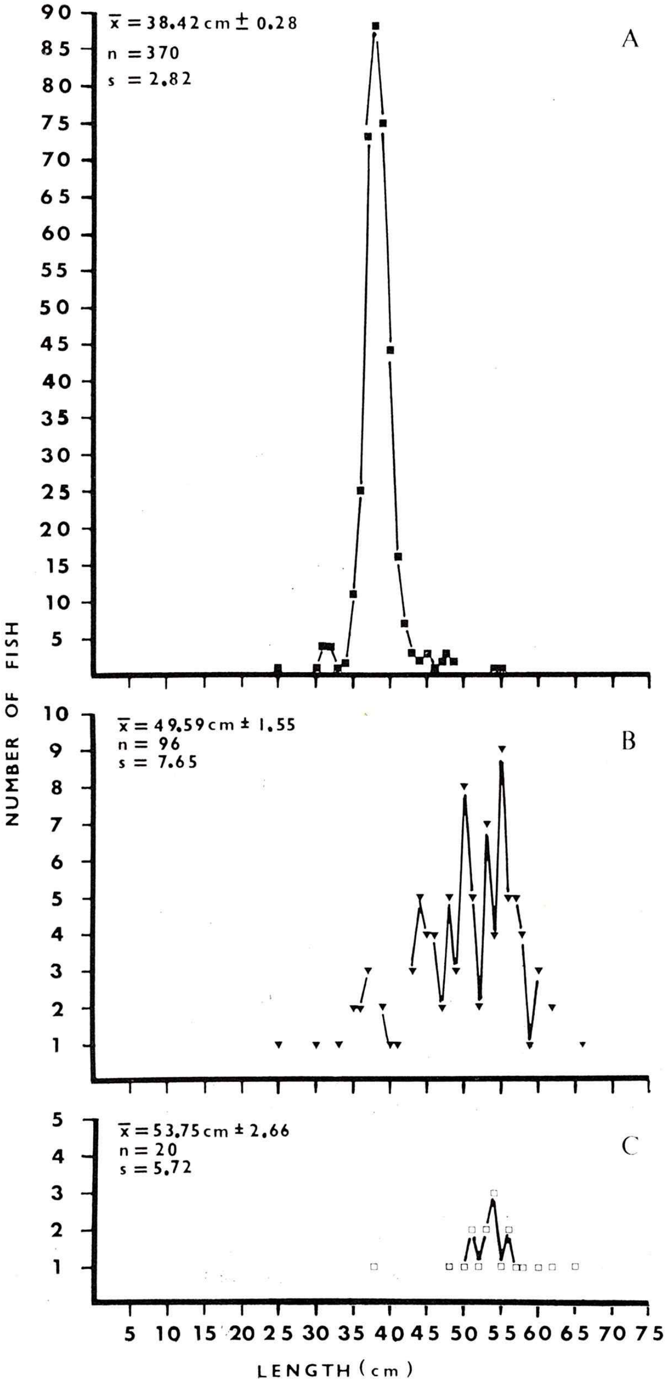


TABLE 3. Age/Length distribution for 81 rainbow trout, 1986 Lake Coleridge Opening Weekend angler survey. F.L. = fork length (cm); S.D. = standard deviation (n-1).

LENGTH			YEARS			TOTAL
(cm)	2	3	4	5	6	
25	1					1
26	1					1
27	–					–
28	–					–
29	–					–
30	1					1
31	–					–
32						–
33		1				1
34		–				–
35		2				2
36		1				1
37		1				1
38		–				–
39		–				–
40		1				1
41		1				1
42		–				–
43		1	2			3
44		2	3			5
45		2	2			4
46		3	1			4
47		1	1			2
48		–	5			5
49			3			3
50			7			7
51			3			3
52			1			1
53			7			7
54			3	1		4
55			3	2		5
56			3	1		4
57			–	5		5
58				3		3
59				–		–
60				4		4
61				–		–
62				1		1
63						–
64						–
65						–
66					1	1
TOTAL	3	16	44	17	1	81
Mean F.L.	27.0	41.4	50.2	57.7		49.3
+/- S.D.	2.6	4.7	3.7	2.1		7.9

Twenty brown trout were aged, with the results as follows (M = male, F = female):—

* 65.5	7	M
53.0	4	M
58.5	5	F
48.0	3	F
54.0	4	F
56.0	5	M
54.0	4	M
48.0	3	F
43.0	3	F
55.0	5	–
51.0	4	–
51.0	4	–
52.0	4	F
38.0	3	F
53.0	4	M
54.0	4	M
57.0	5	M
56.0	4	M
62.0	6	F
50.0	4	F

* = yellow tag No. 3724.

In all species several of the fish scale samples were difficult to read and distinguish the respective annual growth rings. Replacement scales were commonly found in both trout species, with one rainbow sample being unreadable. Broken ring formation and eroded scale edges also lead to difficulties which were overcome by using a large number of scales from each sample.

General Discussion:

The yellow tag No. 3724 recovered from a male brown trout had the following details:—Was tagged by F/O D. Maindonald on 16/7/78 at the Ryton Fish Trap, being 60.7cm and 3180 grams when tagged; at capture it was 65.5cm, 2000 grams and in very poor (slabby) condition. At trapping, going by past age/length results (Webb 1985) the fish was a 5 or 6 year old, so that by November 1986 it was 13 or 14 years old, and yet on reading the scales only 7 years growth could be distinguished, suggesting that the tag implantation may have effected an hormonal change leading to cessation of growth.

When compared with past catch rates for Lake Coleridge (NCCB report 1983) it is evident that the catch per unit of effort (measured as fish per hour) has decreased in the lake over recent years. For example, the seven yearly surveys conducted between 1951/52 to 1967/68 gave a mean catch rate of 0.37 (range 0.3 to 0.59) fish per hour (Flain 1986); from 1978, the seven surveys conducted by the N.C.A.S. (including 1986) had a mean catch rate of 0.21 fish per hour with a range between 0.09 to 0.31. In past Annual Reports a value of 0.36 fish per hour has been used as a guideline, or comparative index on which to evaluate the success or otherwise of each survey—I see no reason to change this standard as it shows what the fishery is capable of and what we all should be aiming for, with the understanding of course, that the physical enviroment of Lake Coleridge has changed over the last 15 years with the Wilberforce diversion and regular fertiliser application, and that there were a lot more anglers in 1986 (10,854 full season adults) than in 1952 (2,385 adult full season) to take out a greater quantity of fish.

Flain (1986) indicated that the opening weekend surveys do not accurately reflect both the relative abundance of the three species in the lake (i.e., the % as noted under **Catch Data)**, and the length frequency of fish landed, especially salmon. Thus, how much reliance one can place on the survey data in managing the lake fishery, is uncertain. For instance, is the decrease in the 1986 salmon mean length an indication of an important population problem or only a seasonal anomaly? Larger sized salmon were being caught in the lake during December 1986 to February 1987 (after the survey) which corresponds with Flain's 1986 (Figure 5) result that the length of the angler-caught salmon increased as the season moved from spring to autumn. Only time, and further extensive and detailed research, will hopefully provide the answers and solutions.

The fishing along the picket fence during the morning of Sunday 2nd November 1986 gave some of the best results since the recent surveys started in 1978, which is a reversal from the previous weekends when Saturday was usually the better of the two days. This shows the value of a Nor-wester for the northern and western lake shore—in fact, the anglers present considered any wind from the west suitable, although anglers on the eastern shore probably would disagree. In calm weather, the glassy water allows the fish to see lures and baits and so avoid capture. What will be of interest, however, for the 1987 opening weekend over 7th and 8th November, is the length of salmon caught—many anglers expressed concern at the small sizes caught during the 1986 opening.

Acknowledgements:

I wish to thank the following people who volunteered their assistance and sacrifice in time and effort in assisting myself and Field Officer B. Ross, in gathering the data and observations:—Prof. W. C. Clark; Messrs P. Barnes, N. Bradley, R. Butler, C. Chapman, J. Dallard, P. Deans, P. Hendry, P. Jenkins, R. Knowles, A. Matravers, Mr and Mrs A. Ross and G. Webb. Without their efforts the survey could not have been attempted.

References:

Flain, M. 1986. The Lake Coleridge Fishery. **N.Z. Ministry of Agriculture and Fisheries Environmental Report 65:** 65p.

Gulland, J. A. 1969. Manual of Methods of Fish Stock Assessment. Part 1. Fish population Analysis. **F.A.O. Manuals in Fisheries Science No. 4 (FRs/M4):** 154p.

Gulland, J. A. (ed.) 1977. Fish Population Dynamics. John Wiley and Sons Ltd., London; 372p.

North Canterbury Acclimatisation Society Annual Reports 1979, 1980, 1982, 1983, 1984, 1985, 1986: 96, 112, 128, 120, 152, 144, 144 pages respectively.

North Canterbury Catchment Board 1983. The Rakaia River and Catchment—a resource survey. **A report prepared by the Resource Investigation Division of the N.C.C.B. and Regional Water Board, Vol. 3:** p24.

Ricker, W. E. 1973. Linear regressions in fishery research. **Journal of the Fisheries Research Board of Canada, 30 (3):** 409-434.

Webb, B. F. 1984. Lake Coleridge opening weekend creel census, November 1983. **North Canterbury Acclimatisation Society Annual Report:** 70-82.

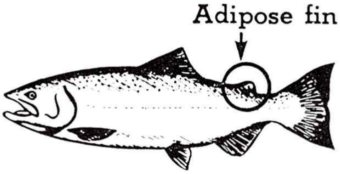
Webb, B. F. 1985. Lake Coleridge opening weekend creel census, November 1984. **North Canterbury Acclimatisation Society Annual Report:** 58-75.

Webb, B. F. 1986. Lake Coleridge opening weekend creel census, November 1985. **North Canterbury Acclimatisation Society Annual Report:** 58-75.

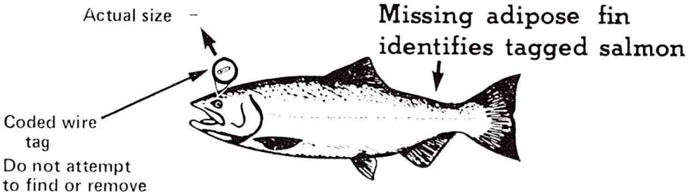
SALMON FISHERMEN

HELP IMPROVE SALMON FISHING

Fisheries Research Division began a new method of tagging salmon in 1977 in order to evaluate experiments designed to increase the runs into South Island rivers. In the last 10 years over 5,000,000 salmon fingerlings have been tagged and released to migrate to sea.



The tag — a minute piece of stainless wire, 1.25mm long and 0.25mm in diameter — is inserted into the nose of the small salmon. Once implanted, the tag cannot be seen, so the adipose fine is removed to act as an identifying mark for fishermen.


Actual size
Missing adipose fin identifies tagged salmon
Coded wire tag
Do not attempt to find or remove

Your help is needed to recover as many tagged fish as possible. If you catch a salmon that has no adipose fin, please cut off the head along the line of the gills and hand it in to a head depot. Depots have been set up close to the main salmon rivers, and posters in each area will direct fishermen to the nearest one.

The depot operator will take your name, address, and details of the fish, and will store the head. When the head is processed, and if it contains a tag, your name will be placed in the next draw of the lottery. One $1000 prize, four $100 prizes and twenty of $20 will be won in each draw; 1 lottery drawn in each season on 1st July.

If you are unable to turn in a salmon head immediately, you can store it frozen and ring your local fisheries or acclimatisation society and the head will be collected.

Please do not try to remove the tag — a special detector is required to locate it.

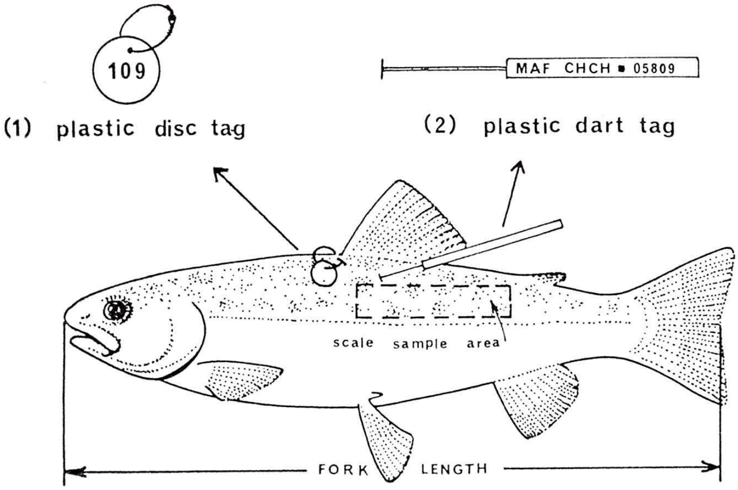
FISHERIES RESEARCH DIVISION, MINISTRY OF AGRICULTURE AND FISHERIES
PRIVATE BAG, CHRISTCHURCH. PHONE 488-939.

RAKAIA TROUT TAGGING

As part of an overall project to obtain data on the fisheries resources of the Rakaia River, the Fisheries Research Division in Christchurch have initiated a trout tagging programme.

Recoveries of tagged fish should provide information on distribution, movements and growth of trout in the Rakaia system.

Trout less than 20cm (about 8 inches) fork length are being tagged with a numbered plastic disc on a wire loop (1). Those greater than 20cm are being tagged with a numbered plastic dart wire (2).

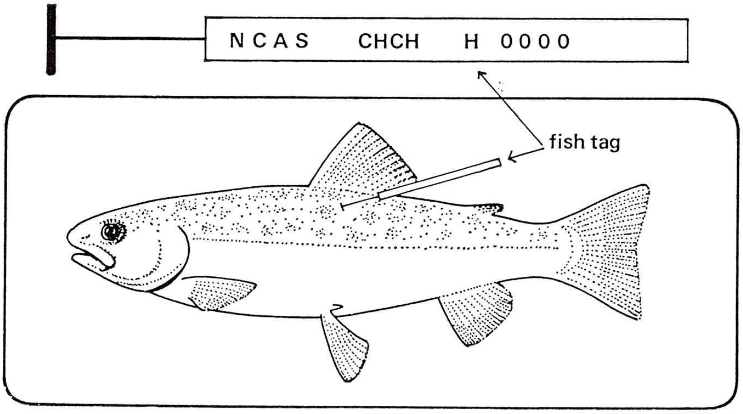


If you catch a tagged trout and keep it, please record fork length (as shown in diagram); sex; location (be precise); date; weight (if possible). Take a minimum of five scales from the fish from area shown. Enclose scales and tag in envelope.

If you release a tagged trout, please record location, date and tag number.
Send all details to:

S. F. DAVIS, M.A.F., F.R.D., CHRISTCHURCH.
(P.O. Box 8324, Riccarton).

BROWN AND RAINBOW TROUT TAGGING



The North Canterbury Acclimatisation Society is tagging brown and rainbow trout, using a numbered series of plastic tags inserted as shown above. Tag colours used are dark blue, brown, orange, yellow and green.

Information from captured fish will be used to study growth, fish movements, breeding habits, changes in population numbers, and angler pressure in the various lakes and rivers.

REWARD

A reward of $3.00 will be paid on receipt of each tag returned to the Society's Rooms, 61 Bealey Avenue, Christchurch 1, **ONLY** if the following basic information is supplied:

Date and location of capture; fish species, length and weight; fishing method used; time of day captured; licence number and type (i.e. male, female, junior); **total number** of fish caught with the tagged fish; plus

Your name and address (for payment of reward).

All individual information received will be **CONFIDENTIAL.** Your **CO-OPERATION** is sought, since the greater the data returned the more accurate will be the **MANAGEMENT** decisions made.

NEW ZEALAND SALMON ANGLERS' ASSOCIATION INC.

The MAIN AIMS of this Association are:

1. To vigorously oppose destructive river development and pollution;
2. to seek compensation for other developments in the way of fish screens, rearing facilities, etc.; and
3. to enhance our fishing in a variety of ways, such as stream improvements, which in the past have been extremely successful in improving and increasing spawning areas.

OUR MANY SUBMISSIONS AND OBJECTIONS TO GOVERNMENT AND OTHER AGENCIES ARE ALWAYS TREATED WITH RESPECT. Not only are they often complimented on, due to their scientific and factual content, but the Association, by virtue of its size (about 1,500 members), cannot be lightly dismissed as "just another minority." We are taken seriously!!!

Our members, who cover a wide range of river users, not only have this active representation, but they also receive a tri-annual magazine as well as other matters to keep them informed. They and their friends can also attend evenings to educate and entertain, and feature the Heaviest Salmon prize giving, films, panel discussions, talks from experts, and displays, all of which cover a wide range of topics from fly to big game fishing. A social hour always follows with the usual lie-swapping and yarning over supper and refreshments.

MEMBERSHIP IS ONLY $11 (includes GST) AND CAN BE SENT TO P.O. BOX 1113 OR ENQUIRIES TO AFTER HOURS PHONE 596-572 CHRISTCHURCH.

WATER RESOURCES

(W. C. CLARK)

The Rakaia River:

The decision of the High Court, concerning the appeal lodged by Federated Farmers, in June 1985, to the Rakaia River Conservation Order recommendations of 3/5/85, was given by Judge J. Jeffries on 17/11/86 following a High Court hearing over 15-16 September 1986. While the 28-page Judgement is too lengthy to reproduce in full, suffice it to say that the Judgement found in favour of the argument advanced by Federated Farmers that water conservation orders should address the sharing of a water resource between competitive users following a multiple use philosophy. The Acclimatisation Societies' case has always been that the 1981 Amendment to the Water and Soil Conservation Act 1967 is not a multiple use statute—the principle Act might be but not the amendment.

Judge Jeffries ruled against us. Thus, we had the situation of one Judge for the Society's interpretation and one against. Therefore, on 19/12/86, the N.C.A.S. wrote to our National Director asking that the National Executive—South Island Council take the Rakaia River National Conservation Order findings to the Appeal Court, to be heard by a panel of Judges. Our application for leave to appeal was granted on 3/2/87 by Judge Jeffries who acknowledged that there were important questions which ought to be argued before the Court of Appeal.

Further correspondence was sent to the Solicitor acting on our behalf, Mr J. Guthrie of Anderson, Lloyd, Sim, McElrea (Dunedin), on 20/2/87, instructing him to lodge an appeal against the Rakaia National Water Conservation Order judgement of Judge Jeffries. At the time of writing no decision has been received from the Court of Appeal.

In the meantime, the Society gave its approval (9/2/87) for those past Rakaia River one-year water right applications, to be renewed for a further term of two years. This approval was given to save costs and time, on request from the North Canterbury Catchment Board on 18/12/86 owing to the Rakaia Conservation Order appeal and the delay in the Planning Tribunal's final decision.

Lake Ellesmere Issues:

(a) At the 1986 A.G.M., reference was made by Mr G. Mugford concerning the cut-off times for farmers to draw off irrigation water and the need for markers to show when irrigation should stop. A letter from Prof. Clark to the N.C.C.B., regarding the low flow markers on the Halswell River, elicited the reply from the Catchment Board (18/12/86) that staff were monitoring the situation regularly, and the most recent gauging (15/12/86) of 1520 litres per second at McCartney's Bridge showed that the river was running above average for the time of the year. N.C.C.B. staff would refurbish as necessary the low flow markers, as the river flow declined, so as to provide N.C.A.S. members and irrigators with a guide as to the rivers minimum flows.

(b) The second topic from the 1986 A.G.M. related to the freeholding of land around Lake Ellesmere. After discussion at the February 1987 Water Committee, the Secretary sent the following letter on 3/3/87 to the Commissioner of Crown Lands:—

"I refer to the Land Settlement Committee hearing held on 22/9/86, in relation to the Ellesmere Crown Land Investigation (Report).

This Society's Water Committee of 25/2/87 requested that I enquire of the Department as to the outcome of this hearing, since we are very concerned as to the fate of the Crown Land (unoccupied and leased) around Ellesmere, especially with the new commercial Lands Department being organised. It is our fear, and there is a lot of talk to confirm it, that most of the short term and unoccupied crown land, and L.I.P. crown lease lands, around Ellesmere, are to be freeholded (as per Figure 11, page 66 of the report "Ellesmere:—a critical area'). Is this correct? and if not, what exactly is the correct situation?

We would be grateful for your comments on this topic, so that we can publish them in our 1987 Annual Report for members, and public, information and so put a halt to any unfounded rumours. If the 'talk' is correct, we would wish an opportunity to argue against such a move, possibly another hearing called by the Lands Department, or D.O.C., along the lines of the 22/9/86 hearing."

The Regional Manager of the Department of Conservation replied on 16/4/87 as follows:—

"I refer to your letter dated 3 March 1987 addressed to the Department of Lands and Survey. For your information, the Department of Conservation now has the management responsibility for all non-commercial land previously managed by the Wildlife Service and the Department of Lands and Survey.

The questions you raise relate directly to the "Ellesmere Crown Land Investigation." This investigation has been through public involvement procedures and in amended form was approved by the Land Settlement Board before it went out of existence on 31 March 1987. I am expecting to be in a position to forward copies of the approved investigation in the next few weeks.

Your specific question regarding the extent to which short term licence areas are to be freeholded, is best answered in the text of the investigation.

At this stage, however, you can be assured that the approved investigation allows for less land to be available for freehold than the draft investigation."

On the 2/6/87, the final chapter in this saga of the "Ellesmere Crown Land Investigation" by J. D. Palmer was the receipt by the Society of correspondence from D.O.C., enclosing a copy of the final 39-page report, which had been adopted by the Land Settlement Board at its 2/3 February 1987 meeting as noted above. This final report will be used by D.O.C. "as a basis for the preparation of a management plan," although D.O.C., having inherited the Investigation Report, has not given it blanket approval, but has supported the idea that the report can form a basis for the preparation of management plans for the conservation lands its administers. Thus, we will have to wait and see just how this affects the Society's work, and what future use can be made of the report both by D.O.C. and the Society. In the meantime, it appears that the points we made in our submission on the draft report on 13/6/86 (refer 1986 Annual Report, page 121) have been largely incorporated into this final report.

As a corollary to this land lease question around Lake Ellesmere, was another topic of vital importance to the Society, namely, the land allocation to D.O.C. or Landcorp, a topic much discussed by the general public during 1987. Meetings involving Councillors Snowdon, Cox and J. Mugford were held on 8/5 and 11/5/87 with D.O.C. and other interest groups, at which they sorted out numerous pieces of unalienated (unoccupied) Crown Land which were in danger of winding up in Landcorp—once there, they could have been sold into private ownership which would then lead to recreational access being banned, curtailed, or paid for. Our N.Z. ancestors must be 'turning in their graves' over such arguments, since the freedom of access for sport and recreation were basic fundamental principles which attracted them to N.Z. in the first place during the 19th and 20th Centuries. N.C.A.S. and D.O.C. staff met again on 25/5/87 concerning the same land issues. In all the meetings, the main criteria for protection of the Crown Lands from Landcorp ownership, were whether they had wetland, fishing, wildlife or conservation potential or value. We wrote to the Department of Conservation, Christchurch, on 4/6/87 seeking a copy of their submission to Wellington relating to small rivers, lakes and wetlands, and seeking assurances that our requirements for preservation will be met. A reply on 21/7/87 from D.O.C. gave us assurances as close to guarantees as a Department can give. This topic will continue into 1988.

(c) On 7/3/87, the National Water and Soil Conservation Authority in Wellington published a public notice on behalf of the Minister of Internal Affairs, making an application for a National Water Conservation Order concerning Lake Ellesmere, pursuant to the Water and Soil Conservation Amendment Act 1981. The applicant seeks to protect the outstanding wildlife habitat features of the lake and its wetlands, by providing for the retention of the lake in its natural state of the quantity and level of natural water; prohibit the granting of new water rights to dam, divert, take, use or discharge of any natural water; restricting the powers of the N.C.C.B. and N.W.A.S.C.A. to contravene any terms of the applications; and imposing further conditions, restrictions or prohibitions to ensure the protection and preservation of outstanding lake wildlife habitat. A special exemption would be for the N.C.C.B. to grant water rights which would enhance the wildlife and wetland features, and for maintaining the status quo water rights.

On the 23/3/87, the Society sent off a three-page submission to N.W.A.S.C.A. in support of the Conservation Order and enclosing a large file of past Society reports, articles, policies and documents which we have published or sent to various organisations. Several further reports, in support, have subsequently also been sent, as they have come to hand. One major omission from the supporting evidence has been the lack of survey data for Lake Ellesmere giving the numbers of shooters using the lake over the years; numbers of birds shot; areas of best shooting and fishing; numbers of anglers, and fish caught. A postal questionnaire survey would be required to gather such information; we have written to the D.O.C. (8/5/87) asking if they could give consideration for conducting such a survey.

(d) Renewal of the Society's Water Right at Harts Creek occurred this year, No.NCY 860595. It was subject to a four-week appeal period (none were lodged); and cost the Society $200; allows us to take 5875 cubic metres of water per day at a maximum rate of 68 litres per second for maintenance of wetland conditions for waterfowl habitat; and expires 30/4/89.

New Zealand Wetlands Management Policy:

(a) A report from the Environmental Council, to the Minister for the Enviroment, called the "New Zealand Wetlands Management Policy", 14 pages, was received on 13/5/87, being a final report from an earlier document on which the N.C.A.S. had based a submission (21st November 1986), and which further elaborated the Government policy printed in our 1986 Annual Report, pages 97-100. Our submission of 21/11/86 included our own wetland policies, printed in 1984, 1985 and 1986 Annual Reports, plus a Council motion that the Society is "still concerned with the illegal draining of wetlands", pointing out the examples at the headwater of the Ashley River and along Winding Creek. We asked the question: who polices the policies and ensures that they are implemented properly and legally?

The 13/5/87 final report, then, was a collation of the 75 submissions received from throughout the country, with the following being the **conclusions and recommendations:—**

"Many of the submissions rightly dwelt on the threats to the survival of wetlands that exist today, that is, the physical threats and those threats that exist because of the shape of the institutional framework and the bias in the planning process. This report attempts to assess those threats and looks for opportunities to improve our management of wetlands by proposing changes to the institutional framework and planning process. The following recommendations summarise those proposed changes:

Recommendations:

1. That the Department of Conservation, as a matter of urgency, formally recognise and protect all wetlands in Crown ownership which meet the IUCN criteria for "wetlands of international importance".
2. That the role of the Department of Conservation in co-ordinating and advocating wetland protection be clearly and publicly defined as soon as possible, and that adequate resources be allocated to carry out these functions.
3. That the Department of Conservation rationalise, with urgency, the present confusing multiplicity of categories of reserves.
4. That the Department of Conservation, with other appropriate agencies, move to resolve the legislative inconsistencies between fresh water and salt water management and between inland and maritime reserve status.
5. That funds be available to enable the Department of Conservation to give priority to the purchase of important wetlands in private ownership.
6. That, where wetlands of importance are held in private ownership, the facilities of the Queen Elizabeth II National Trust to offer convenants to cover wetlands of importance be enhanced.
7. That the Department of Internal Affairs move to amend the Rating Act to enable rating authorities to waive or defer rates on wetlands with protected status.
8. That wetlands of national importance be designated as such by the Government and so become eligible for purchase under the Public Works Act.
9. That when the Town and Country Planning Act is revised it include the protection of wetlands of cultural, scientific and representative importance as "a matter of national importance".
10. That in the meantime the Government direct the Ministry of Works and Development, in carrying out its responsibilities under Section 3(2) of the Town and Country Planning Act 1977, to regard the protection of significant wetlands as a matter of national interest.
11. That in order to assist regional government to carry out its statutory responsibilities effectively and efficiently, advice from government departments on the wetland resource and its management be readily available at no cost because of the national importance of wetlands, and that the Ministry of Works and Development take responsibility for this.
12. That the Department of Internal Affairs move to amend provisions of the

Local Government Act to enable local authorities to protect wetlands in urban and rural subdivisions.

13. That the Government urgently advance consolidated water and soil legislation which contains:
    - Consolidation of the two acts;
    - Statutory recognition of water and soil planning;
    - Inclusion of wetlands within the criteria of Conservation Orders and Notices;
    - Clarification of water rights required to drain wetlands;
    - Penalties sufficient to ensure adequate protection.

14. That the Government ensures sufficient funding to catchments works programme (MWD Programme VIII) to support wetland protection measures.

15. That there be a statutory clarification of the legislative provisions relating to the coastal environment. Such provisions should be consistent with related statutes and the developing of policies and plans for the coastal environment should come under the jurisdiction of regional government. The Ministry for the Environment and the Department of Conservation would have roles to play in this area.

16. That the national wetlands inventory (WERI) be maintained and regularly updated by the Department of Conservation, and that the information therein be readily available.

17. That Conservation New Zealand, a sub-committee of the Nature Conservation Council, the Department of Conservation and the Department of Education prepare education programmes aimed at key audiences, and that education on wetland values be included in both primary and secondary school curriculums".

(b) For the information of members, the role of the Ministry for the Environment and the reasons for its establishment, are as follows:—

"The goal of the Ministry for the Environment is set out in the Environment Act 1986 as follows:—

To ensure that, in the management of natural and physical resources, full and balanced account is taken of:

- the intrinsic values of ecosystems
- all values which are placed by individuals and groups on the quality of the environment.
- the principles of the Treaty of Waitangi
- the sustainability of natural and physical resources
- and the needs of future generations.

The definition of "environment" in the Act includes:

- ecosystems and their constituent parts
- all natural and physical resources
- and the social, economic, aesthetic and cultural conditions which affect the environment or which are affected by changes to the enviroment.

The functions of the Ministry for the Enviroment are:

Firstly, to advise the Minister in all aspects of enviromental administration including:

- policies for influencing the management of natural physical resources and ecosystems so as to achieve the objectives of the Environment Act 1986.
- significant environmental impacts of public or private sector proposals, particularly those that are not adequately covered by legistative or other enviromental assessment requirements currently in force.
- ways of ensuring that effective provision is made for public participation in environmental planning and policy formulation processes in order to assist decision-making, particularly at the regional and local level.

Secondly, to solicit and obtain information from any source and to conduct and supervise research, so far as it is necessary for the formulation of advice to the Government on environmental policies.

Thirdly, to provide the Government, its agencies and other public authorities with advice on:

- the application, operation and effectiveness of the Acts specified in the Schedule to the Environment Act 1986 in relation to the achievement of the objectives of that Act.
- procedures for the assessment and monitoring of environment impacts
- pollution control and the co-ordination of the management of pollutants in the environment.
- the identification and likelihood of natural hazards and the reduction of the natural hazards.
- the control of hazardous substantances, including the management of the manufacture, storage, transport and disposal of hazardous susbtance.

Fourthly, to facilitate and encouarge the solution of conflict in relation to policies and proposals which may affect the environment.

Fifthly, to provide and disseminate information and services to promote environmental policies, including environmental education and mechanisms for promoting effective participation in environmental planning.

Sixthly, generally to provide advice on matters relating to the environment.

The Ministry for the Environment was launched on 1 December 1986, generally to have the mandate to seek a balance between conservation and development. It was the first of the new agencies to be established as part of the Government's major restructuring of its environmental administration. That restructuring includes the disestablishment of:

- Commission for the Environment; New Zealand Forest Services; Lands and Survey Deartment.

The following new agencies have been established:

- Parliamentary Commissioner for the Environment; Ministry for the Environment; Department of Conservation; Ministry of Forestry; Department of Survey and Land Information; Forestry Corporation; Land Corporation.

Some Government departments have had multiple objectives—part commercial, part conservation, part policy and part regulatory. Thus, in the past, major land use decisions could be made within Government departments in which managers had sometimes conflicting objectives. Those departments are now divided into smaller agencies in which managers will be accountable for achievement of explicit goals, and decisions will be made in a more open manner.

The objectives behind the administrative restructuring have included:

- to establish agencies with clear and unambiguous goals; that is, explicitly commercial or conservation or policy or regulatory.
- to encourage higher management performance and greater accountability as a result of those clearer goals.
- to allow a more open ("transparent") process of decision-making on resource use and environmental decision-making.
- to encourage environmentally sensitive and efficient management of New Zealand's natural and physical resources.

The previous Commission for the Environment, established in 1973, had functions both of providing policy advice to Government and of auditing Environmental Impact Reports. Consistent with the philosophy described above, these roles have been separated. The Ministry for the Environment is purely a policy agency of Government. The task of auditing Environmental Impact Reports will be undertaken by the Parliamentary Commissioner for the Environment, an independent officer of Parliament.

The changes made have been major and now give New Zealand one of the most sophisticated environmental administrative systems in the world."

(c) Between July and September 1986, a series of correspondences between N.C.A.S. and M.A.F. (Fisheries Research, Christchurch) were exchanged relating to a Schedule of Protected Wetlands nationally important having fishery values. The Society forwarded (17/7/86) a list of 24 "wetlands" we considered worthy of protection, for consideration and possible inclusion into M.A.F.'s list for their submission to the Ministry of Works and Development, at an inter-departmental meeting. A list of protected wetlands is to be included in a revised Water and Soil Bill. The ten criteria for selecting these nationally important wetlands for fisheries were:—

(a) A habitat for a rare or endangered fish species.

(b) A unique or diverse assemblage of fish species.

(c) A habitat for a fish species with limited national distribution and/or declining numbers.

(d) A biologically or scientifically important fishery or fish habitat.

(e) An unmodified wetland habitat with significant endemic fisheries value.

(f) A particularly good example of a specific type of fishery or fish habitat.

(g) A remnant or regionally representative wetland with significant fisheries value.

(h) A nationally important non-salmonid fishery, including commercial and traditional Maori fisheries.

(i) A nationally important salmonid fishery.

(j) A wetland which is particularly important as a water retention or riparian buffer zone for fisheries in the catchment.

While the M.A.F. schedule sent to M.O.W.D., 16/7/86, listed only Lake Ellesmere and associated wetlands, lower Hororata River and Saltwater Lagoon, in the final analysis, several of our other nominations were included in a separate **rivers and lakes** inventory, e.g., Hydra waters and Winding Creek. We will have to await the revised Water and Soil legislation to view which North Canterbury water bodies are included in these various inventories.

Lake Coleridge:

(a) On pages 84-85 of the 1986 Annual Report mention was made of Crown Water Right No. 72, for Lake Stream, having been submitted to the National Water and Soil Conservation Authority for approval. The approval for the water rights was given on 29/1/87, to dam Lake Coleridge at Lake Stream for electricity generation purposes (NCY 860628), and to discharge water from the lake to Lake Stream at times of lake flooding (NCY 860629), both rights expiring on 30/4/96, and both having sets of conditions governing their operation and usage, e.g., the discharge right can only be exercised when lake levels are likely to exceed 509.6 metres above the Lake Coleridge power station datum.

(b) As noted on Page 81 of the 1986 Annual Report, research projects have been discussed during the year. A study proposal, from the Ministry of Works and Development to the New Zealand Electricity (Ministry of Energy), was received during September 1986, to examine the Lake Coleridge turbidity and water quality. The project was to run for one year (to October 1987), costing an estimated $29,331 with Secchi disc readings taken plus sampling for chlorophyll recordings and suspended solids, as part of a programme to find out how the Wilberforce and Harper river discharges were affecting water quality and thus possibly the fisheries themselves. At the time of writing, no results have been communicated to the Society.

On the fish research question, there has been only slow progress. A meeting was held on 16/10/86 between staff of N.C.A.S., Fisheries Research Division (M.A.F.) and Ministry of Energy, to discuss possible funding of a research project, the main problem being to identify which fish monitoring programme would be most suitable for all involved groups, since any funding had to come from the Ministry of Energy. The outcome of the meeting was a proposal (21/10/86) from the Ministry of Energy outlining three options for fishery research, to which the Society opted (11/11/86) for the third option of a three year "fellowship" to study hydro-development effects on the conditions and trends of the Lake Coleridge quinnat salmon fishery, possibly involving fauna and flora lake bottom sampling, fish and habitat surveys, and use of divers to collect base biological data for future reference usage. During January-February 1987, Council agreement was reached for the Society to appoint the Fisheries Research Division (M.A.F.) as our appropriate consultants to compile a detailed research programme including specific objective timetables, and the resource requirements, with the Electricity Division making $5000 available to pay for this consultancy under the Government's new user-pays policy. At the time of writing (July 1987), the Society is awaiting the draft research programme from M.A.F.

(c) In the meantime, since April, 1987, environmental planners Boffa Miskell Partners Ltd., have been assessing the potential of the Ryton Station environment, for a possible development involving a recreational resort complex, for fishing, skiing, tramping, hunting and other leisure activities. The Society has only limited knowledge of this development, apart from a visit to the Secretary by a Boffa Miskell representative who was seeking preliminary information for an environmental impact study. At this stage it is not known how big the development will be, if any, or what accommodation and leisure-recreational activities are planned. The Society will keep close surveillance on plans as they develop, to ensure no pollution of waters occurs or habitat damage eventuate, in this environmentally sensitive area.

Waimakariri River Catchment Issues:

(a) On Page 93 of the 1986 Annual Report, a report was given concerning Water Right Applications No. 0277 and 0278 for Waikene Farms Ltd., the former being an N.C.A.S. objection against septic tank discharge, and the latter an N.C.A.S. submission concerning stormwater discharge. During September and October 1986 the North Canterbury Catchment Board prepared reports (by Dr L. Lineham and Mr M. TeLove, respectively) on these two applications, which were circulated to the Society. Concerning Application 0277, the Society replied, on 16/10/86, that "our objections would be met by implementation of Dr Lineham's report". In general, both N.C.C.B. reports gave assurances that stormwater and septic tank discharges would not flow into Lake Grasmere or the Grasmere stream catchment, thus adversely affecting the important regional fishery and biological-wetland values.

Subsequently, three water rights were issued by the N.C.C.B. to the Waikene Farm Ltd., Grasmere Station, and publicly notified in January 1987, as follows (expiring 30/4/98):

1. W.R. 0276:—to take up to 52 cubic metres of water per day from a proposed bore, K34/4; 150 mm diameter and 20 m deep (permit 1104), at map reference K34: 188-945, for a community water supply to a proposed accommodation development at Grasmere Station.
2. W.R. 0277:—to discharge up to 30 cubic metres per day of septic tank effluent into ground from a proposed residential/holiday development complex at Grasmere Station, via field tile lines of slotted PVC pipe, at map reference S066:226-152.

Conditions:

(a) That the disposal area be located at the northern boundary of the freehold property adjacent to State Highway 73.

(b) That the construction and maintenance of disposal systems be to the satisfaction of the regional Water Board.

3. W.R. 0278:—to discharge up to 326 cubic metres of stormwater per day at a maximum rate of 17.5 litres per second, from a proposed residential/holiday development complex, via drains to the Cass River catchment at map reference S066:224-161.

Conditions:

(a) That cut-off and drainage channels be constructed prior to construction or landscaping commencing on the site.

(b) That a suitably sized culvert be installed under Avoca Road in the vicinity of S.H. 73, to the satisfaction of the Regional Water Board.

(b) Pages 95-96 of the 1986 Annual Report, referred to water right applications for the Castle Hill area; one firstly advertised on 12/7/86 (W.R. 0322 a, b, c) by the Malvern County Council to discharge oxidation pond effluent onto land via border-dyke and/or spray application for 6.2 hectares of nut trees and pasture, to which the Society sent a submission on 18/7/86; and secondly, notification that water right applications were due for the proposed Castle Hill Equestian Centre.

(1) W.R. 0332 a, b, c:—A seven page report (by Dr M. Freeman, N.C.C.B.) on this application, was received on 2/12/86 in which it was recommended after research and analysis, that the Board grant the water right subject to a number of conditions relating to effluent quality, seasonal irrigation distribution and groundwater quality control and protection. The Society replied on 19/12/86 that we write to the North Canterbury Catchment Board "stating that their proposed conditions would meet our objections and submissions".

A complex situation has since developed, with this application still being with the Catchment Board, and no final decision made. It would appear as if Part (a):—

"to discharge up to to 236 cubic metres per day of oxdiation pond sewage effluent onto the land, via border dyke irrigation, in circumstances which may result in that effluent, or any other waste emanating as a result of natural processes from that effluent, entering groundwater. Discharge between 1 September and 28 February when climatic conditions favourable"—will be the only part proceeding through; at present the N.C.C.B. is awaiting a Malvern County Council response concerning Health Department requirements.

Parts (b) and (c) are in abeyance until further notice:—

"(b) to vary NCY 790106 (to take water from Thomas River for domestic water supply purposes) by diverting up to 236 cubic metres per day of water, into the Castle Hill village sewage oxidation pond, for the purposes of supplementing oxidation pond effluent volume for irrigation;

(c) to discharge up to 236 cubic metres per day of oxidation pond sewage effluent onto land via spray irrigation, at a maximum rate of 11.35 litres per second, in circumstances which may result in that effluent entering groundwater. Discharge to occur between 1st September and 28th February when climatic conditions are favourable, and is for the purpose of spray irrigating 6.2 hectares of land containing plantings of nut trees and pasture adjacent to the oxidation pond",

— as they may not be passed or proceeded with. Castle Hill Station has been the subject of a property sale which could affect the outcome.

(2) The second topic relates to the Equestrian Centre proposed for Castle Hill. The planning application, in June, 1986, and our submission on page 94 of the 1986 Annual Report, were followed up by a public hearing of objections and submissions by the Town Planning Committee of the Malvern County Council, on 14/8/86, at the Council Chambers, Darfield. The Society was represented at the hearing by Mr R. F. Knowles (President) and Mr A. Ross, and where all interested parties had the opportunity to speak on the topic and to their submissions. The meeting indicated that the stables would not be washed, but have straw, and so wastes would get carted away. Following this hearing advice was received on 29/9/86, from the Malvern County Council, of the decision by Council to the application by Castle Hill Run Ltd., for planning consent to establish an equestrian centre and associated activities:—

". . . following a hearing on the 14th August 1986, the Council adopted the decision detailed hereunder at its meeting on the 12th September 1986.

That the application of Castle Hill Run Ltd. for planning consent for the establishment of an equestrian centre and associated activities and other facilities in general accord with the document and plans lodged as part of the application, on property described as R.S. 38335 but more latterly as R.S. 40481 being on the east side of the S.H.73, opposite Castle Hill Village, having been considered under Section 74 of the Town and Country Planning Act 1977 as a specified departure from the provisions of the District Scheme, for the Rural F zone in which the site concerned lies, be approved under Section 67 of the Act, subject to the following conditions:—

(1) The accommodation provided shall be for essential staff only, and no bunkhouse or bunkhouse manager's flat shall be permitted.

(2) The only food premises shall be a canteen for light lunches and refreshments and no restaurant as such shall be permitted.

(3) The craft workrooms and shops (other than those directly connected with horses) and souvenir shop as proposed, shall not be permitted, although souvenirs relating to horses may be sold in the canteen.

(4) The proposed landscape plan submitted is to be initiated in the first planting season and completed before the centre is opened to the public.

(5) Access shall be provided at the expense of the applicant, shall be located, designed and constructed in consultation with the Ministry of Works and Development and to the satisfaction of the County Engineer.

(6) That power and telephone services are to be reticulated underground.

(7) That water supply, stormwater drainage, sewage and refuse disposal services be installed to the satisfaction of the County Engineer and that any necessary water rights be obtained from the North Canterbury Regional Water Board.

(8) That any advertising signs erected shall conform with the standards in the District Scheme, be designed, finished and maintained with careful regard to views and background features and colours and be sited to the satisfaction of the County Engineer.

(9) That the design, and finish of buildings in the centre visually integrate with the local environment and shall be to the council's approval.

(10) That the existing partly completed log house is removed from the site prior to the commencement of any physical work on the site.

Note:

The development will be subject to the payment of a development levy and full development plans are to be submitted to the council at the earliest stage in order to assess this contribution.

The Council approves the application for the following reasons:

(1) The Council accepts that the proposal is principally a recreation facility with subordinate educational and farming activities.

(2) The Council accepts that some economic use must be allowed on the site and that the proposal would meet a present need for summer attractions in the area.

(3) The Council considers no residential or commercial development should occur on the east side of the state highway.

(4) The Council, on the basis of the conflicting evidence put forward, considers that access can be provided without reducing traffic safety, and that the cost should be met by the applicant.

(5) That with the bunkhouse and non-essential accommodation provided in the village, the provisions of the District Scheme limiting the design capacity of the village can be preserved.

Council notes that possible reasonable sites for a council depot will be precluded by the proposal but that the site suggested by the applicant would not be suitable. A site is still to be agreed upon for refuse disposal also.

Please note that if you wish to appeal against this decision you must do so within 1 month (of the date this notification would have been delivered to you in the ordinary course of post) to the Planning Tribunal (Registrar, Department of Justice, Tribunals Division, Private Bag, Postal Centre, Wellington), in accordance with the procedures and requirements set out in Section 69 of the Town and Country Planning Regulations 1978.

Any planning consent may be acted upon if and when there is no appeal against Council's decision, but if not acted upon, shall lapse on the expiry of a period of 2 years after the date of the consent decision, unless otherwise specified in this decision or unless extended by resolution of Council (after application is made to Council within a period of 3 months after the expiry period), pursuant to Section 70 of the Act".

Running parallel to these developments, occurred the Water Right application on behalf of Castle Hill Run Ltd., Castle Hill, 0353 (a), (b) and (c), advertised on 2/8/86, which applied to discharge stormwater of varying quantities from a proposed equestrian centre and commercial area of approximately 5 hectares into the Thomas River system. The Society sent the following submission to the Catchment Board, on 11/8/86, acknowledged by the Board on 19/8/86:—

"Re: Water Right Application 0353, Castle Hill Run Ltd., Castle Hill.

I refer to the above water right application in three parts, to discharge varying amounts of stormwater from the proposed equestrian centre **direct** to the Thomas River - Broken River catchment. The Society submits that this application should be very carefully checked by the N.C.C.B. since there are a number of questionable points inherent with the application.

We would insist that no pollution be allowed to flow directly into the Broken River system, this pollution being associated with stormwater from roadways and paddocks. Not all the stormwater is from tarsealed or concreted or roofed buildings, but from shingle roadways and ordinary paddocks on which horses will defaecate or be associated, with the resulting faeces being washed straight into the stormwater drains without treatment. What guarantees can the Company and Catchment Board give to ensure such effluent will not exist or be discharged?

Further, with the number of cars obviously planned to be present, what protection exists to stop vehicular pollution (oil, diesel, petrol) from being washed with stormwater and directly discharged into the Broken River system. No mention has been made of this source of pollution by Fitzmaurice and Partners or the Company.

Thus, this Society is very concerned about the stormwater coming from the "proposed equestrian centre, from roof areas, **roads and existing undeveloped areas".** Such areas, by definition, will not be pure freshwater, but loaded with horse and car effluent, plus usual surface siltation and debris. We would be grateful, therefore, if the Catchment Board could investigate such sources of pollution, and give all concerned, guarantees that such contamination will not affect the water quality of the Thomas and Broken river systems."

We were the only ones to make submissions on this application. The Catchment Board staff subsequently investigated the application, with the report (by Mr M. TeLove, N.C.C.B. water right Investigating Officer) being adopted by the N.C.C.B. in November, 1986, as follows:—

"Further to my letter dated 19 August 1986 I advise that the Board has granted Castle Hill Run water rights to:—

(a) discharge up to 1870 cubic metres of stormwater per day at a maximum rate of 21.6 litres per second from a proposed equestrian centre, down a terrace via a special channel, with an energy dissipating structure at its base, to the Thomas River at map reference S66:200958;

(b) discharge up to 734 cubic metres of stormwater per day at a maximum rate of 8.5 litres per second into a channel to the north of the development, all from a proposed equestrian centre opposite Castle Hill Village on S.H.73 at map reference S66:200956;

(c) divert and discharge up to 3340 cubic metres of stormwater per day at a maximum rate of 311 litres per second from a commercial area of approximately 5 hectares to the north of and adjacent to Castle Hill Village via a 900 mm diameter culvert under S.H.73, and along new drainage channels to be constructed along the northern boundary of the equestrian centre to an existing channel at map reference S66:201958,

subject to the following conditions:

(1) that the grantee provide the Regional Water Board with copies of plans and specifications for all aspects of the scheme prior to work commencing on site;

(2) that all work associated with the stormwater disposal for the area be to the satisfaction of the Regional Water Board.

(3) that the design and plans for the works associated with the rights be prepared by a registered engineer."

The expiry date is 30/4/88.

(c) Waimakariri River and Catchment Resource Survey (3 volumes)—these were reviewed by the Water Committee during 1986-87, with Councillors considering the volumes excellent information sources for the future, although not supporting the irrigation and dam proposals mentioned. Until these contentious issues are actually applied for, the Society has adopted a waiting attitude since the Catchment Board is well aware of our views at this stage.

(d) N.C.F. Kaiapoi Ltd, Water Right Applications 0580 -585:— pages 102 to 106 of the 1986 Annual Report detailed the Water Rights 4972—4977 granted for the discharge of freezing work effluent both into the Courtenay stream and onto land, with the expiry dates being September 1989.

On the 22/11/86, the N.C.C.B. published six new water right applications for the Stevens N.C.F., Kaiapoi, No.'s 0580 - 0585, being:—

- 0580 and 0583: for a total maximum discharge of 6300 cubic metres per day to be irrigated onto the total area comprising the 'Timperleys' and 'Parkinsons' blocks.
- 0581 annd 0584: for a total maximum discharge of 400 tonnes per year to the total area comprising 'Timperleys' and 'Parkinsons' blocks.
- 0582 and 0585: for a total maximum discharge of 4500 cubic metres per day from the total area comprising the 'Timperleys' and 'Parkinsons' blocks.

Note: Application NCY 850494, which was advertised on 7/6/86 and referred to on page 106 of our 1986 Annual Report, was withdrawn. The **new** applications 0580 - 585 were to gradually replace the **old** applications 4972 - 4977 mentioned above.

On 5/12/86 the Society sent in the following submission to the Catchment Board concerning the Water Right Applications 0580, 0581, 0582, 0583, 0584, 0585:—

"I refer to the above six applications for various discharges onto, and from a total of 110 hectares of the "Timperley' and 'Parkinsons' blocks. While not objecting to the method of land disposal, we do query the quantities to be discharged and request of the Board that it checks the disposal quantities to ensure the land area can absorb the 6,300 cubic metres per day and 400 tonnes per year applied for. By calculation, the 6,300 cubic metres per day equals 44,100 cumecs per week on 1.1 million square metres of land, giving 0.040 cubic metres (or 40 mm) per square metre per week. In addition the 400 tonnes per year would provide 7.69 tonnes per week on 110 hectares. While the Society fully supports the land disposal concept, it would appear to us that the correct and successful implementation of this water right application will depend largely on land management by Company employees responsible for the effluent disposal. A significant portion of the 110 hectares is low lying and thus may or may not be suitable for receiving effluent quantities especially in times of wet weather.

Further, the Society is a little concerned, and puzzled, at applications 0582 and 0585 which are to discharge 4,500 cubic metres per day of land drainage water containing "renovated" effluent into the Kaiapoi and Waimakariri Rivers. While the Society understands that there is a 1-day storage capacity available in times of emergencies or wet weather, we cannot still equate the need for a 4,500 cubic metres per day discharge containing part of the 6,300 cumec treated meat and sheepyard cleaning slurry plus 7.69 tonnes of sheepyard paunch solids. It would be our contention that the 110 hectares should absorb the entire effluent quantities, all year round, irrespective of the amounts of precipitation or height of ground water. The Society requests that the Catchment Board check and examine these two water rights, to see if they are valid, may not be reduced by 50% or more, or even deleted. For example, is the 4,500 cubic metres per day supposed to be surface water or resulting seepage discharge after going through 1 metre of shingle, earth and surface vegetation? And how much fluctuation can we expect "up to 4,500 cubic metres per day" during each month or year? We expect that the Board would be cognizant of the need to be seen to be reasonable in the light of the requirement of C.F.M. (Belfast) to clean up their effluent, as per the Class D Standards for the lower Waimakariri River.

The Society would be interested in receiving a report on these 6 water rights, especially since they border on very sensitive fishing areas, namely, the lower Kaiapoi and Waimakariri Rivers, where, already, significant pollution occurs from sewage effluent, cement works, timber yards, and urban development, despite the new improved C.F.M. discharges from the South Branch to under the main road bridge."

A replacement application for 0585 was advertised on 21/3/87, which, in effect, altered the discharge of 4,500 cubic metres per day of land drainage directly into the Waimakariri River, to the Courtenay Stream after the effluent had been "renovated". The Society consequently sent a letter to the N.C.C.B. (15/4/87) stating that from the reworded application "an improvement in effluent is envisaged, from present and future action, to which the Society would be well pleased. Any continuing intention to clean up the effluent pouring into the Courtenay Stream, Kaiapoi River or lower Waimakariri River, will have the full support of the N.C.A.S. As noted in our letter of 5/12/86, we would expect the N.C.F. Limited's effluent will need to be improved, considering the Class D classification of the water and all our past efforts to finally get the C.F.M. effluent into a reasonable state. The Society applauds the land disposal method and trusts that the 4,500 cubic metres per day of renovated effluent, mixed with land drainage water, will be of high quality suitable for discharge into the Kaiapoi and Waimakariri Rivers."

A 15 page report by Dr M. Freeman, N.C.C.B., which analysed and detailed the pros and cons of these 6 applications, was accepted by the Catchment Board on 1/5/87, including the following recommendations and conditions (these have yet to be officially published):—

"Recommendation

That the Board grant to Stevens-N.C.F. the rights to:

0580 — (1) discharge up to 6,000 cubic metres per day of primary treated meat processing effluent including fellmongery effluent and 300 cubic metres per day of sheepyard cleaning slurry, after primary screening and dissolved air flotation, onto the ground via low pressure spray irrigation onto area of 76 hectares known as 'Timperley Block' described as bounded by the Courtenay Stream, the Kaiapoi River, the Waimakariri River, and Woodford Glen Speedway Track. (Approximate map reference M35:832572.)

0583 — (2) discharge up to 6,000 cubic metres per day of primary treated processing effluent including fellmongery effluent and 300 cubic metres per day of sheepyard cleaning slurry, after primary screening and dissolved air flotation, onto the ground via low pressure spray irrigation onto area of 34 hectares known as 'Parkinsons Block' described as bounded by the Waimakariri River, the Main North Truck Railway and Woodford Glen Speedway Track access road. (Approximate map reference M35:820560).

Conditions (both rights)

(1) That the Regional Water Board be supplied with detailed plans of all aspects of the proposed effluent disposal scheme prior to work commencing.

(2) That all works be carried out to the satisfaction of the Regional Water Board.

(3) The total daily discharge from the works shall not exceed 6,300 m^3.

(4) The effluent discharged shall contain no human sewage.

(5) The grantee shall install four observation bores to the satisfaction of the Regional Water Board.

(6) At monthly intervals, the grantee shall supply the Regional Water Board with daily flows of effluent irrigated to each block.

(7) The grantee shall make a potable water supply available to the boundary of the Woodford Glen Speedway to the satisfaction of the Regional Water Board.

(8) No stock shall be allowed into the spray irrigation areas at any time.

(9) The discharge of effluent to the spray irrigation areas shall be regulated to avoid any ponding or flooding.

(10) The site shall be managed to the satisfaction of the Regional Water Board.

Recommendation:

That the Board grant to Stevens-N.C.F. the rights to:

0582 — (1) discharge up to 4,600 cubic metres per day of land drainage water containing renovated effluent from the 'Timperley Block' into the Kaiapoi River, at map reference M35:836575;

0585 — (2) discharge up to 1,300 cubic metres per day of land drainage water containing renovated effluent from 'Parkinsons Block' from two discharge points into the Courtenay Stream at or about map reference M35:822564.

Conditions:

(1) That the Regional Water Board be supplied with detailed plans of all aspects of the proposed effluent disposal scheme prior to work commencing.

(2) That all works be carried out to the satisfaction of the Regional Water Board.

(3) The effluent discharged shall not at any time exceed the following values:

- (i) pH: within the range 6 to 9.
- (ii) Floatable fat: concentration 2.5 gm^{-3}
  total loading 14.7 kg d^{-1}
- (iii) Total fat, oil and grease: concentration 100 gm^{-3}
  total loading 590 kgd^{-1}
- (iv) B.O.D.5: concentration 100 gm^{-3}
  total loading 590 kgd^{-1}
- (v) Ammonia — N: concentration 10 gm^{-3}
  total loading 59 kgd^{-1}
- (vi) Sulphide: concentration 0.3 gm^{-3}
  total loading 1.7 kgd^{-1}
- (vii) Suspended solids: concentration 100 gm^{-3}
  total loading 590 kgd^{-1}
- (viii) Faecal Coliforms: median value of 2.8×10^5 $(100ml)^{-1}$, from five samples taken over a seven day period.

(4) The discharge to the Kaiapoi River, and the main discharge to the Courtenay Stream shall be located underwater on the river beds and fitted with diffuser systems to ensure prompt and full mixing, to the satisfaction of the Regional Water Board.

(5) The effluent shall be sampled and monitored at points to the satisfaction of the Regional Water Board.

(6) The effluent discharged shall contain no human sewage.

(7) The grantee shall sample the effluent discharges from each agreed upon discharge point, for those determinands noted in (3) above at least once per week and supply the Regional Water Board with monthly reports detailing the results.

(8) At monthly intervals, the grantee shall supply the Regional Water Board with daily flows of effluent, from each agreed upon discharge point.

(9) (a) The Courtenay Stream discharges — Should this right be exercised concurrently with water right NCY 850495 or NCY 850-489, the total quantity of effluent discharged under this right shall be reduced so that the total combined quantity of effluent discharged shall not exceed 5,227 m^3d^{-1}.

(b) The Kaiapoi River discharge—Should this right be exercised concurrently with water right NCY 850495 or NCY 850489, the total quantity of effluent discharged to the Courtenay Stream and Kaiapoi River shall be reduced so that the total combined discharges shall not exceed 5,900 m^3d^{-1}.

(10) The granting of these rights is subject to the surrender of rights NCY 850489—850494 on the completion of works associated with these rights.

Recommendation:

That the Board grant to Stevens - N.C.F. the rights to:

0581 — (1) discharge up to 400 tonnes per year of sheepyard and paunch wastes onto the ground. Disposal via mechanical land spreader onto the area known as 'Timperley Block'. (Approximate map reference M35:832572.)

0584 — (2) discharge up to 400 tonnes per year of sheepyard and paunch wastes onto the ground. Disposal via mechanical land spreader onto the area known as 'Parkinsons Block'. (Approximate map reference M35:820560.)

Conditions:

(1) That the Regional Water Board be suppled with detailed plans of all aspects of the proposed effluent disposal scheme prior to work commencing.

(2) That all works be carried out to the satisfaction of the Regional Water Board.

(3) The effluent discharged shall contain no human sewage.

(4) The effluent shall be distributed evenly to avoid undue concentrations of waste.

(5) The total discharge from the works shall not exceed 400 tonnes per year.

Expiry date 30 Sept. 1989 "

(e) Water Right Application 0145 a and b; J. L. Roper and H. A. Faulkner, Springfield — to divert and discharge up to 43,200 cubic metres of water per day, at the maximum rate of 500 litres per second, from a spring-fed swamp between Kowai and Waimakariri Rivers, for pond rearing and releasing of salmon.

The Society has sent two submissions concerning these applications, to firstly, the N.C.C.B. for the water right, and secondly, to the M.A.F. for the necessary future fish farming licence.

(a) Our water right submission included the following:—

"While not objecting to the applications, since the land appears to be freeholded the Society would like to submit several concerns to the Catchment Board, for their consideration and investigation.

1. The area proposed for the salmon farm is situated on Cabbage Tree Flat, in which is located a 20 acre or so wetland; the swamp land is to be modified to allow for water collection. While the Society approves in principle to all salmon enhancement methods we would not like them to adversely affect existing springs and wetlands — it is our policy to create and preserve wetlands, not destroy them. If this salmon venture can be successfully located without affecting the wetland involved, all well and good.

2. The proposed swamp drains out into a series of braids-channels-streams, which are all very important natural spawning and nursery waterways for salmon and trout, both migratory and resident. If these 2 water right applications, in any way, adversely affect these waterways, such as pollution, drainage, siltation, then the Society would be against the applications. Flowing into, passed and sometimes through this area, are other spawning streams beyond Cabbage Tree Flat, e.g., Hacketts Creek and the Kowai spawning stream (flows into the Little Kowai River about the junction with the Kowai River), as well as the Kowai River itself, all of which attract wild quinnat salmon for spawning. These natural streams and migrations must not be adversely affected."

Thus, the Society had no objection to the applications providing the existing and neighbouring spawning streams and wetlands were not adversely affected through drainage, reduced flows or pollution of any description.

(b) For the consideration of the fish farming licence by M.A.F., as per the Freshwater Fish Farming Regulations 1983, our submission included the following comments:—

"While the Society does not wish to oppose these applications, there are other biological concerns which the Society wishes to express to the M.A.F. in regards to any future fish farm licence that Messrs Roper and Faulkner may be granted. We firstly make the point that the Society is fully supportive of any salmon enhancement of the Waimakariri River system, as expressed by our representatives at the 18/6/86 meeting with M.A.F. at Kyle Street, and shown by our salmon eyed ova plantings during 1986 and 1987, and stream improvement work over the last 10 years. The Waimak. system, after all, is the most heavily fished waters in North Canterbury (and the South Island) as shown by Laurel Teirney's angler survey report (F.E.R. 1986, unpublished), and our 1976 OCTA survey. The salmon farm proposal by Messrs Roper and Faulkner could well add to this enhancement, providing they released smolts on an annual basis, and there was sufficient water to attract them back to their private point of release, which would be at their freehold land boundary.

However, there is a danger that if the returns of adults back to the farm are insufficient, then the licencees will demand their "rights" to net the wild spawning salmon in the Kowai River-Cabbage Tree-Hacketts Creek area to supplement their ova needs. Such a netting of the wild adults would be totally opposed by this Society, as being against both N.C.A.S. and South Island Salmon Committee policies.

Thus, we would request that conditions be added onto any fish farm licence to Messrs Roper and Faulkner, which would include:—

(a) that it was very clearly stated that no rights be ever granted to the applicants to interfere in any way, with the wild salmon stocks which already run in the streams on the Waimakariri River beds;

(b) that the natural spawning streams in the region be not adversely affected or interferred with in any way;

(c) that access be allowed to all freshwater fishery officers through Mr Roper's property, onto his area of streams on the Waimakariri riverbed, for official purposes:

(d) that no restriction be placed on anglers access onto the riverbeds;

(e) that no stripping of the wild salmon adults be allowed for ova supply; and

(f) that it be made very clear to the licencees that the point of release be at the boundary dividing private land from Crown or unoccupied land."

We noted also that the above conditions be inclusive of the conditions normally added to all other fish licences relating to pollution, offal disposal and fish disease precautions. A copy of our submission to the North Canterbury Catchment Board, was also included for M.A.F. information.

CANTERBURY REGIONAL PLANNING SCHEME, SECTION 3.1: DRAFT REGIONAL DEVELOPMENT STRATEGY FOR WATER AND SOIL:

In April 1987, the North Canterbury Catchment Board published the above titled discussion draft, for the Canterbury United Council, in accordance with the provisions of the Town and Country Planning Act 1977. This comprehensive 124 page report was sent to the Society by the Catchment Board, on 21/4/87, requesting any comments and reaction to the strategy document. A review of the report by the Water Committee during April-May 1987, lead to the following observations, remarks, points of view, being sent to the Catchment Board on 26/5/87. **(Note:** for members to fully understand our letter, they will need to have a copy of the N.C.C.B. strategy document, since we refer to various page numbers and policies. However, I have deemed it necessary to publish our comments since they do contain a number of Society views, policies and concerns, which members should be aware of).

" Firstly, the Society would like to congratulate the Board's staff who compiled this report. It is well constructed and presented, and does a very good job in balancing the multitude of views and expectations of all competing interests and groups. We just hope that the Board means what it says, in this strategy, as by definition, some of the well-meaning statements are fairly general and could be construed in different ways depending on the interpreter. In this light, the Water Committee made the following comments in an effort to provide, in our view, an even better balance as well as elucidating several areas.

Part 2: Plains and Downs:—

Between pages 22 to 34, irrigation and drainage topics are discussed, and while we appreciate that this report is to plan and present **strategies,** the Society cannot help feeling that here, once again, irrigation is being pushed and pursued with vigour at the expense of other values. We note on Table 2, page 9, that of the 16 regional objectives, 2 only specifically relate to irrigation and 6 to wildlife — wetland preservation. It is our observation that most increased irrigation activity argument and debate appears to take place before an election or associated in marginal seats. Irrigation is also a topic in which every interested person or group has strong opinions, leading to emotive and exaggerated claims and views, and to a seemingly neverending stream of agriculture reports and studies, some of which are very poorly researched, argued and presented, as seen by the recent Canterbury and Aorangi Irrigation Study.

Having said that, however, the Society notes **Policy 5,** but wonders what damage can and will occur to the aquifer if groundwater is allowed to be over-exploited. While we support groundwater abstraction as opposed to surface irrigation we are not very happy with the blanket statement on page 26 to artificially recharge groundwater using water from major rivers, on the grounds that such schemes are uncontrollable as presently seen with the Waiau schemes, and not practical owing to the discharge of discoloured abstracted river water leading to siltation of raceways, farm land and rivers and streams lower down. Such recharging also forms wetlands and lowland bogs on low-lying, previously dry areas, which leads in turn to further drainage problems, necessitates artificial ditch formation and water right applications. Recharging could also block aquifers over a period of time, leading to a break-down in ground water abstraction and movement. Observations in the Waiau region has also noticed that with the border-dyke irrigation (which also recharges aquifers), surface water flows have lead to removal of fine top soil exposing shingles and gravels. We would therefore urge extreme caution in the implementation of 2.6 (page 26), and fully support the concern expressed at the bottom of page 32.

The Society is pleased to note the onfarm storage of water on pages 24 and 27, but considered that this topic should be given greater weight within the Report itself, perhaps even its own heading and section. We are of the opinion that this issue could be the main saviour for farming in Canterbury, along with judicial use of groundwater. Ponds at Garrymere are examples of this controlled and wise use of water; many farms in lowland Canterbury have existing opportunities to store water in ravines, depressions and gullies.

There is, however, one statement, on page 27, which this Society takes great exception to: "Current evidence would suggest that there is ample water for irrigation of most of the potentially irrigable land in both Canterbury and Aorangi United Council regions, without significantly affecting instream uses or values of rivers - -". The Society's Water Committee's reaction to this sentence was **"Rubbish"** — it has **never** been demonstrated to be true, and is an unproven, unsubstantiated statement which can lead to confusion and gross misrepresentation, irrespective of qualifying conditions. We note, in this regard, the apparent anomaly in Table 3 (page 43) and Appendix 5, where for the Waiau River, minimum water flows are allowed to drop by 2 cumecs (February and March) below the minimum flows ever recorded, a typical biased situation where irrigation conflicts with environmental issues. Wetlands and Lake Ellesmere (pages 35-38). Once again we note with sadness and frustration the past failure of the N.C.C.B. to save and conserve the Lees Valley wetland, an attitude this Society communicated to the Catchment Board in our letter of 12/8/82 in which we expressed alarm at the degree of degeneration in the Ashley River water resource. Our concern at the continual loss of wetlands in Canterbury has been well documented, and made known to the Catchment Board. We of course support Policy 13, but would suggest, after "enhanced", the words "and expanded where applicable" be added.

Concerning Lake Ellesmere, the Water Committee pointed out that it was not just the **opening** of the lake that was important, but also its time of closure which limits the degree of salinity. As Mr Philippe Gerbeaux, Ph.D. student at the Centre for Resource Management, has found out, high salinity leads to the stunting of the **Ruppia** sp. growth, and therefore adversely affects its regeneration and re-establishment. This fact could well be included in page 37, and incorporated in Policies 14 and/or 15.

Part 3: Rivers:—

The Society has already mentioned above, the minimum recorded flows in Table 3; we consider there could be a conflict between Appendix 5 and the statement on page 46 " - - that no significant loss of present amenities would occur, given appropriate water allocation rules which prevent rivers being abstracted below **natural low flows - -** ". Further, Councillors made the point that in the second paragraph, page 46, in relation to the "lack of an adequate water supply - -", there was an urgent need for **more efficient use** of water with irrigation schemes, rather than the need for more water. Our view is that most irrigation water abstractions could well be reduced by up to 50% if excess water discharges over roadways, and into sidestreams (usually in other catchments), were eliminated.

Policy 22 — The Society requests a major alteration to the list on page 49, and would remind the Catchment Board of our Rakaia River National Conservation Order, and the 1981 N.C.C.B. nominated schedule of rivers requiring protection, which included protecting both the Rakaia and the Waimakariri Rivers from their source to the sea. We query also the wording in the last sentence relating to the Waiau and Boyle Rivers — these two rivers do not join, thus do not have a confluence. Should not the "Boyle" be "Hope" River?

Policy 26 — We suggest an addition, after the word "discourage", with " - - and be banned during the bird nesting season". These vehicles, 4WD, dune buggies and motorbikes, play havoc with riverbed nesting waders such as stilts, wrybills, plovers, terns, by destroying nest eggs and juveniles which are extremely well camouflaged.

Policy 28 — We also suggest changing the word "discouraged" to "prohibited". Surely, indiscriminant dumping of refuse should be stopped, not just discouraged. A weakly worded policy can be just as useless as no policy at all.

Part 6: Hill Country:

Erosion resulting from dozing of tracks and fencelines, and from forestry operations — page 75, as well as pages 84, 92 and 93. This problem generated a lot of discussion, with the Water Committee **strongly requesting that buffer zones of vegetation** be left alongside all roadways, around forestry operations, and around all agricultural activity, so as to absorb the extensive water run-off resulting from the heavy precipitation so characteristic of this region.

We give as an example the Lake Sheppard shoreline where cultivation has occurred in places to within a metre of the shoreline and inside the "Section 58" strip. There are no engineering or environmental principles involved in such cultivation, in the creation of tracks across hillsides, or in forestry clearances, which can dictate their location, distance from wetlands (including lakes and rivers), drainage angles, or ways to lessen the speed and volume of surface run-off. Tracks on steep land channel water into gullies—even in these circumstances narrow buffer zones can be inadequate as seen round Lake Mary and the shoreline of Lake Sheppard. We would suggest, therefore, that the concept of **buffer zones** be added to page 75, thus becoming part of the water and soil strategy.

Section 7: High Country:—

Under this section there are 4 main viewpoints which this Society would like to see incorporated into the **strategy** document.

(a) Firstly, the issue of burning, which can destroy rare native habitat, and unnecessarily alter the vegetation in a region for all times. We especially refer to the stands of red tussock which are found near or alongside wetlands, usually in an up-stream situation where they act as buffer filters for the rapid run-off from the heavy precipitation found in this high country. An example is the Hydra Waters in the Upper Rakaia River Catchment. Brown top, snow tussock and matagouri are other vegetation species at risk from burning, all of which protect wetlands and streams from the effects of erosion. These statements above could well be included on page 86 under **Burning** for added explanation.

(b) The Society is very disturbed at the lack of a **Wetland Section** in this High Country part, especially when it is considered that most of our high country lakes, wetlands, swamps, bogs exist in this region; we would strongly recommend such an inclusion in this **Strategy** document. While we appreciate that this topic has already been partially recorded on pages 35-38, and page 49, we consider special mention is required for the High Country. The Society encloses our policy on wetlands (Appendix A) for high country lakes and wetlands, and recommends to the Catchment Board that an abbreviated version of this policy be incorporated into the **Strategy** document, possibly between 7.7 and 7.8.

(c) In association with Policies 62 and 63, we refer to the berm fencing carried out in the Department of Lands and Survey blocks in Southland, where streams, small water courses, and even small rivers, have been totally fenced off to exclude cattle, horses and deer, with spectacular results. Once collapsed, eroded, denuded banks, and aggraded, silted and blocked streams, very quickly reverted to stability; banks with renewed vegetation and definition, and streams with quickly flowing, clear water full of aquatic life. All because of fencing and the exclusion of stock. May we therefore suggest that under **implementation,** the N.C.C.B. include a strategy of berm fencing (refer enclosed Appendix B) to add positive teeth to a well argued issue. In fact, the Society wishes to applaud the concepts in the whole of Section 7.3 and assure the Catchment Board of our total support in its implementation. We point to our Cora Lynn fencing as a start to this "berm" fencing idea; and to the fencing attempt, by the N.C.A.S. and Lands and Survey, at the Hydra waters which was only partially adequate — we would like to see the **whole** of the Hydra waters fenced but lack of compensatory finance to the leasee precludes this happening at present.

(d) Concerning page 97, 7.8 **Water Pollution,** Councillors agreed that water quality is high but pointed out that it is also easily disturbed. Thus, in addition to a wetland policy, the Society refers the Board to our **Buffer Zone** policy (Appendix B), and suggest an addition be made to the Implementation of Policy 75, incorporating the formation of buffer zones, as a matter of high importance, around all lakes and wetlands, and along all rivers and streams.

Lastly, the Society would like to endorse policy 78 as a means of protecting the high country. There is a lack of access present, which, if upgraded could well lead to the protection of those values and areas which draw people into the region. Less destruction of the environment could be the result, for the better future of all concerned.

The Society thanks the Board for the opportunity to make comments on this Draft Strategy document."

LOCH KATRINE:

No real progress has occurred with this topic, from that reported on page 97 of the 1986 Annual Report. The Society received a letter, dated 16/2/87, from the Department of Lands and Survey which stated the following:—

"I refer to your submission on the 1986 Loch Katrine Recreation Reserve Draft Management Plan. It has been several months since you forwarded your submission and I feel it is time to bring you up-to-date on what is, or rather is not, happening to the submissions received. The departmental officer responsible for analysing the submissions and redrafting the management plan, has had a number of other urgent projects to complete and has been unable to allocate time to Loch Katrine issues. This has been further exacerbated by the pending disestablishment of the department and the establishment of the Department of Conservation.

At this stage I am unable to indicate when the submissions to the Loch Katrine Recreation Reserve Draft Management Plan will be analysed. What I can say is that I doubt that there will be much action in this regard before September 1987 and it may well be later than that."

1986 WATER RIGHT APPLICATIONS, UPDATED:—

A number of N.C.A.S. submissions and objections were referred to on pages 107-108, relating to water right applications which had still to be decided on.

(A) H. J. Anderson, Rotherham, W.R. 0283, for salmon farming purposes — an N.C.C.B. technical report was produced for this application, with a recommendation (25/7/86) that it be granted subject to six conditions. Subsequent events finally lead to the application lapsing, and thus was not granted by the Board.

(B) H. R. and L. Dolan, Dorie, South Rakaia (W.R.0346), for pond rearing and ocean ranching of salmon—our submission of 24/7/86 simply stated that the application be carefully monitored and research to ensure no environmental damage; any fish and wildlife habitat be maintained in their natural state; fish screens be installed if required; the water quality associated with salmon farming be maintained at high levels; and that in future no variation be permitted to alter the discharge point into the lower Rakaia River.

As it turned out, there were four objections to the application. A N.C.C.B. Technical report was circulated to all interested groups on 30/10/86 recommending the application be granted, and that if the objections were to continue, a Catchment Board Standing Tribunal would be formed. This Tribunal subsequently sat on 22/1/87, with evidence from all objectors, and N.C.C.B. staff, being circulated beforehand. On 9/2/87, the Catchment Board circulated a letter inviting all parties (objectors and submittors) to make written submissions on the legal opinion raised at the Tribunal hearing, of whether the Board had the power to grant the Dolan's rights immediately or was the Board constrained by the Draft National Water Conservation Order for the Rakaia River.

The Society replied (27/2/87) to the Board, that it was our considered opinion that it would be unwise to proceed to determine the Dolan applications before the N.C.O. matter was resolved, on the grounds of precedence, of prejudicing the outcome of the N.C.O., and of complicating the situation by placing the Board at possible future legal risk. On 18/3/87, the N.C.C.B. informed all parties that, on considering the written submissions, the Tribunal had decided to proceed without reconvening the hearing and submit its report and recommendations to the full Board on 3/4/87, which then decided to grant the W.R.0346 water right to M. R. & L. Dolan, Dorie as follows:—

"I give formal advice of the decision of the Board as Regional Water Board on the application by M. R. and L. Dolan and on the objections thereto.

The decision of the Board is as follows:

That the Board grant M. R. and L. Dolan of Dorie the rights to:

(a) divert up to 172,800 cubic metres of water per day at a maximum rate of 2.0 cubic metres per second from farm drainage channels adjacent to the Rakaia River, at map reference L37:440019;

(b) use up to 172,800 cubic metres of land drainage water per day at a maximum rate of 2.0 cubic metres per second for ocean ranching and pond rearing of salmon at or about L37:442008;

(c) discharge the water diverted via an outfall channel to the sea at or about map references L37:445998;

subject to the following conditions:

1. that all channel works and all structures be designed by a registered pro-

fessional engineer and that all construction work be supervised by a professional engineer;

2. that plans, satisfactory to the Regional Water Board, for all works and structures be deposited with the Regional Water Board before construction commences;
3. that the timing and details of the construction sequence be approved by the North Canterbury Catchment Board.
4. that the material excavated from the collector channels and main canal be deposited as directed by the North Canterbury Catchment Board;
5. that the grantee shall operate and maintain a fish screen on the discharge except during periods of salmon return or release;
6. that the operation and maintenance of the settling ponds be to the satisfaction of the North Canterbury Catchment Board;
7. that there be no discharge of water or waste from the settling pond cleaning operations; and
8. that provision be made to maintain a flow of at least 80 1/s in Dolan's Drain at its intersection with Bully Creek.

Expiry Date 30 April 1998.

Objections:

(a) That the objection of the Rakaia Hut Owners' Association Incorporated be not sustained on the grounds that it is met by the conditions imposed.

(b) That the objections of the Ashburton Acclimatisation Society and the Save the Rivers Mid Canterbury Group be not sustained on the following grounds:

  (i) the granting of the application is not contrary to the draft Conservation Order in its present form and is not regarded as preempting a final order;

  (ii) the granting of the application will not detrimentally affect the Rakaia salmon fishery;

  (iii) condition 8 satisfies the objectors' concerns about loss of water to Bully Creek.

Costs:

That the applicant contribute the sum of $400 and the Rakaia Hut Owners' Association Incorporated, the Ashburton Acclimatisation Society and the Save the Rivers Mid Canterbury Group the sum of $100 each towards the Board's costs of conducting the hearing and that otherwise the costs of the Board and of the parties lie where they fall."

An appeal was lodged on 4/5/87 by the Rakaia Hut Owners' Association Inc., to this decision by the Catchment Board, but was withdrawn on 20/5/87 since the appeal occurred outside the legal 28 days allowed for appeals, as pursuant to Section 25 of the Water and Soil Conservation Act 1967. The final decision above was published in July 1987.

(C) W.R. 0218, Earlys Intake No. 1, Ellesmere County Council,—water diversion for stock water—the Society objectied in 1986 on the grounds that the fish screen was not functional. A report from the Catchment Board was received on 13/8/86 which assured the Society that the fish screen would be maintained and operated, in future, on a daily basis and to the satisfaction of the Regional Water Board. After reviewing the Catchment Boards report, the Society's Council adopted a motion on 20/8/86: "that we withdraw our objection on the basis of the N.C.C.B. report, and guarantees that the fish by-pass and screens will be operational in the future". This water right was to expire April, 1987.

However, on 12/11/86 a letter was received from the N.C.C.B. to the Society, stating that since the Ellesmere County Council rural supply was specifically excluded from the Rakaia River Conservation Order, would the Society object to a recommendation for the application to expire in April, 1997. The Society approved this recommendation in a letter of 21/11/86, with the W.R. 0218 (a), (b), (c) decision being published in February 1987:—to divert 106,300 cubic metres of water per day at a maximum rate of 1230 litres per second; use 98,000 cubic metres of water per day or 1130 litres per second, for community stockwater; and discharge 100 litres per second for fisheries and wildlife purposes; all with conditions applying.

FURTHER WATER RIGHT APPLICATIONS:

(A) Three water right applications had N.C.A.S. submissions sent to the N.C.C.B., relating to fish farming and ocean ranching of salmon purposes:— **W.R. 0552,** Amuri Salmon Ltd., Waiau East Road, Spotswood, to divert and discharge up to 60,480 cubic metres of water per day at the maximum rate of 700 litres per second for fish farming purposes—the Society requested (7/11/86) no fish or wildlife habitats to be adversely damaged or destroyed, fish screens to be securely installed at all intakes and outfalls **and** be guaranteed operational, no pollutions from the salmon farm to be allowed, and sufficient by-pass water be allowed to flow in the natural stream course at all times to maintain the natural flora and fauna. A month later, a **variation application 0552B** was published to use the Waiau East stream flow for cage rearing of salmon, to which the Society lodged a second submission relating to more stringent pollution controls since cage rearing by its very nature is prone to producing significant fish food and fish excreta pollution discharges. These two applications were approved as W.R.0552 in February 1987, expiring 30/4/90. **W.R. 0041 A,B,C;** Atkinson, R.W.H., "Marchmont", Hanmer Springs; divert, use, and discharge up to 86,400 cubic metres of water per day at a maximum rate of 1000 litres per second, for the pond rearing of salmon — again, the Society submitted that the Board ensure the effluent discharge containing fish food excess and fish faeces was of a high standard and did not pollute the Percival River and downstream waters, while any wetland area remained in its original state. At the time of writing, this application is expected to be approved later in 1987.

(B) Three further submissions to water right applications were lodged:— **W.R. 0406,** B. G. Irvine, Doyleston; take 1950 cubic metres per day for spray irrigation—we requested that the Board exercise caution in granting similar abstraction rights for Boggy Creek since this creek was an important trout spawning stream, and the Society would be most concerned if spawning was adversely affected. The application was granted in January 1987, to expire 30/4/89. **W.R. 0400;** Rangiora District Council; to discharge 6134 cubic metres per day of treated oxidiation pond effluent into Southbrook, Marsh Road — we requested adequate monitoring so that the receiving waters did not exceed the Class D water classification, and that the fishery and wildlife habitats and the aquatic flora and fauna, were not adversely affected. The application was granted in January 1987, to expire 30/4/98; **W.R. 0083B,** W. D. G. Brownlee, Te Pirita; to divert up to 34,500 cubic metres of water per day via the Ellesmere County Council's

Te Pirita (No. 2) intake, for spray and border strip irrigation — this application was to replace NCY 860175 (J. J. Brownlee) which fell due May 1987, with the new application being available only if needed when the No. 1 Earlys Intake flow was insufficient. The Society submitted that, if used, a fish screen was to be installed to protect the resident and migratory fish species of the Rakaia River from being lost to the system, such fish screen to require approval from the M.A.F. pursuant to the Freshwater Fisheries Regulations 1983. At time of writing no N.C.C.B. decision has been received by the Society on this application.

GENERAL TOPICS:

(A) A copy of Technical Publication No. 5, National Water Protection Committee of N.Z. Acclimatisation Societies, has been received, entitled "Mining Guidelines", compiled by B. R. McPherson, 43 pages, to be used by individual Societies for planning their activities prior to and during operation to avoid as much as possible the impacts on water and soil resources, both onsite and downstream of the mining; is a useful document for Society staff in understanding mining water rights and procedures.

(B) In response to a newspaper article, of 25/2/87, the Society wrote both to the North Canterbury Electric Power Board and Hurunui County Council, expressing our concern and opposition over new proposals to investigate the building of a dam on the North Branch of the Hurunui River. This section of the river has the best angling for trout in Canterbury, wonderful scenic values, and from a water quality viewpoint, is unspoilt. Similar proposals in past years lead to much public outcry, and written submissions, in opposition.

(C) The Society received a set of recommended control measures on 27/4/87, for our information, sent from the Catchment Board to the Malvern County Council, concerning recommendations made at a meeting on 8/12/86, to control pollution from the Hawkins rubbish dump, Darfield. During 1986 this dump was invaded by flood waters from the Hawkins River resulting in serious pollution problems. A series of reports and much correspondence between the N.C.A.S., Malvern County Council and North Canterbury Catchment Board lead to the 8/12/86 meeting. The management control measures recommended by the Catchment Board, are listed below for information of members.

1. Raise the existing bank along the active dump area by 2 metres approximate to prevent flood overflows into the dump.
2. Plant up the bank along the "filled in" area and "active" area of the dump site to prevent erosion of material.
3. Construct a suitable bank along the river frontage to the proposed dump extension to protect the area from flooding and erosion.
4. Clear a "fairway" in the Hawkins River to ensure flood flows are carried downstream and away from the dump site without causing unnecessarily high flood levels due to inadequate effective waterway.
5. Chemical containers e.g. empty weedicide, pesticide and drench drums, could be deposited in a designated area for subsequent burying by Council staff down to a maximum depth of 4m below top surface level. This would reduce the risk of chemical residues entering groundwater.
6. Covering "filled" area of dump with an impermeable natural material e.g. clay, to reduce the movement of leachates into groundwater from

rainwater infiltration above. Grading of finished filled areas to prevent ponding of surface water would also assist this process.

7. Full time supervision of dumping at the site would also be desirable.

(D) The Society has sent brief comments to the Christchurch City Council regarding their well compiled Draft Management Plan for Mona Vale. Our comments related to white swan and their safety, lack of trout fishing mention in the report, and a request that they contact the Society before dredging the river to remove silt.

(E) The Christchurch City Council's Draft Management Plan for the Avon-Heathcote estuary, has been received by the Society (June 1987). We sent in our approval for the Plan, as well as our support for the Fisheries Research Centres submission for additional whitebait habitat protection. The D.M.P. is 22 pages, is a commendable document covering all facets of the estuary, and provides long term policies for estuary's management.

CONCLUSION:

As will be apparent the last year has been without high drama, but filled none-the-less with plenty of unspectacular work which will ensure that other bodies are reminded constantly of our concerns for the environment and the resources we manage.

During the year I was appointed to the National Water Protection Committee. I hope to benefit from closer insight into how other Societies manage their problems.

As in past years, again I thank members for keeping us informed about matters coming to their notice and for their contributions to the work of the Water Resources Committee.

W. C. CLARK,

(Convenor)

GAME MANAGEMENT COMMITTEE REPORT, 1987

(D. J. POTTS)

Introduction

On behalf of the Game Committee it gives me much pleasure in presenting the Game Management Report for 1987.

Game Priorities

(a) Main Programme:

1. Pre-season ranging as top priority.
2. Maintain scareguns on properties experiencing crop and pasture predation, plus ratification of the 1978 policy on predation*.
3. Continue with the raising, nursing and collection of ducklings, juvenile wildlife, injured birds, at Greenpark.
4. Continue with the Greenpark Farm breeding programme to maintain a stock of game birds, i.e. grey partridge, chukar partridge, ring-necked pheasants, California quail, red-legged partridge.
5. Collecting of white swan juveniles for the fulfilling of requests in N.C.A.S. and other districts, and so assist on the species survival.
6. Carry out black swan nesting surveillance in September-October, with a ranger for observing the main nesting colony, for ranging, and maintenance of the electric fencing (Wildlife Service).
7. Conduct Paradise duck count by aircraft in January, including St. Annes Lagoon and Lakes Ellesmere and Forsyth.
8. Continue the waterfowl counts in the seven selected areas, at the end of August.
9. Carry out programme of maintenance and repairs at Greenpark (as per lists).
10. Range over opening weekend in lower Waimakariri, Cam, Brooklands Lagoon, Oxford.

***Predation:** Inspection by Councillors or Rangers who reside in district.

Preference No. 1 — Councillor to inspect predation to save expenses; failing this, rangers to inspect.

Preference No. 2 — Councillors to supervise and organise shooters to scare gamebirds. Council **not** to supply ammunition. Exception — scaregun to be utilised in lieu of the above if possible.

Scareguns — owing to scareguns not being too reliable, reorganization of scareguns necessary, e.g. replacements at certain times according to funds available. At Wildlife Rangers Conference instruction in the use of scareguns essential for use in country areas. Guns to be sent by bus on Wildlife Ranger's or Councillor's request, if available.

(b) General Programme:

1. Assist Wildlife Service with Canada Goose banding and any other Wildlife project, e.g. Grey Teal surveys.
2. Approval given for pond subsidies to be through Game Committee and

Council, after Wildlife Service inspection and approval; all subsidies paid to be claimed through South Island Council when, or if, they are approved.

3. Permit three subsidies of $100.00 per gun to farmers for the purchase of their own scareguns, on a first in first served basis.
4. Assist with Canada Goose through egg pricking, moulting drives, organized shooting parties, when necessary.
5. Continue improvements to Refuges and Reserves, when necessary, such as fencing; planting crops, trees, shrubs; clearing drains and accumulated growth and debris.
6. Accept the day to day management of all Reserves in the N.C.A.S. district, as a general policy, and subject to individual review as per the Wildlife Act.
7. Continue recording areas having closed game area, and wetland potential, from Councillor and Staff observations and experience.
8. Supervise the issuing of permits, and conducting ballots, for shooting stands on:
    1. the Wildlife Management Reserves (Selwyn and Lakeside) at Lake Ellesmere.
    2. of all stands on reserve land, as need arises.
9. Duck banding programme, January to March, if possible.
10. Conduct publicity seminars on game shooting to educate shooters, and encourage new shooters to enter the sport.

DUCK SHOOTING SEASON

The winter and spring of 1986 was the wettest for quite a few years and consequently left many patches of flood water about, which were made full use of by breeding ducks. Broods of 12-14 ducklings reaching the flapper stage was quite common. Prior to the 1987 season duck numbers around Lake Ellesmere, and the rest of the district, appeared to be considerably up on the last few seasons. Duck hunters waited in eager anticipation for opening day to arrive. A moderate southerly wind arrived a day early, and by opening morning (2nd May) was dropping away. Staff observations would indicate nearly all hunters had ducks. Since the duck decoy numbers were fixed at 30 per hunter there has been an increase of more than one hunter shooting together, so as to pool their decoys into an enticing looking flock. The season then proceeded quietly until we had two good southerly blows (mid June) near the end which produced a few limit bags to those that were able to go out in mid-week.

The 1986 A.G.M. recommended to the Game Committee that the duck season should finish at Queen's Birthday weekend (first weekend in June). After much discussion the Game Committee decided to reduce the season down to the months of May and June. Although a shorter duck season would have encouraged more Canada goose hunting, it was felt that because of the good duck breeding season having two months was a reasonable compromise. The 6.30 a.m. stop at night to duck shooting was decided on by the Department of Conservation, to help protect the grey teal and other protected species. Now that the season has finished reports would indicate there are still plenty of ducks about to breed for next year's shooting. Please note: the 1988 duck season will commence Saturday 7th May. **NOTE:** A problem to watch in future duck seasons, is the use of automatics; this topic came up for discussion at the May Executive meeting when a shooter was apprehended with an automatic capable of holding three shells. A warning only was issued. However, the Executive Committee adopted a motion (27/5/87) requiring a **clear statement** be made concerning automatics: "following the uncertainties that may have arisen from the changing laws relating to the pinioning of auto-shotguns, that from this time forward the present laws requiring them to be pinned will be enforced". Both the Wildlife Act 1953 and the Wildlife Regulations 1955, are very clear on this issue:—

(a) Wildlife Act 1953, Section 18 (1) (c) (iii) — Save as otherwise expressly provided in this Act, or except in such circumstances and at such times, areas, and places, and subject to such conditions as may from time to time be authorised, pursuant to a notification given by the Minister, **NO PERSON SHALL** hunt or kill any game with any shotgun having a magazine of any type unless the magazine is so adjusted in accordance with regulations made under this Act, that the magazine is incapable of holding more than one shell.

(b) Wildlife Regulations 1955, Regulation 21 — for the purposes of Section 18 (1) (c) (iii) of the Act, the magazine of every shotgun having a magazine of **ANY KIND** and used for hunting or killing game, shall be so adjusted that the magazine is incapable of holding more than one shell, as follows:—

  (a) In the case of an automatic or semi-automatic or auto-loading shotgun with a tubular magazine —

    (i) by inserting a metal or wooden filler at the muzzle end of the magazine of such dimensions that it cannot be removed without prior removal of a metal pin set transversely through the magazine and riveted at both ends; or

    (ia) by inserting at the muzzle end of the magazine a metal or wooden filler that cannot be removed without the prior removal of a metal cap, inserted in the magazine tube above the magazine-spring retaining clip and below the end of the magazine tube, and soldered sweated, or brazed to the magazine tube in at least two diametrically opposed points; or

    (ii) by inserting a metal pin set transversely through the magazine and riveted at both ends.

  (b) In the case of a repeating shotgun with a tubular magazine —

    (i) by inserting a metal or wooden filler at the muzzle end of the magazine of such dimensions that it cannot be removed without the prior removal of a metal pin set transversely through the magazine and riveted at both ends; or

    (ii) by inserting at the muzzle end of the magazine a metal or wooden filler that cannot be removed without the prior removal of a metal cap, inserted in the magazine tube above the magazine-spring retaining clip and below the end of the magazine tube, and soldered, sweated, or brazed to the magazine tube in at least two diametrically opposed points;

  (c) in the case of a repeating shotgun with a box magazine, by inserting a metal pin riveted at both ends and set transversely across and through the magazine;

  (d) in the case of a shotgun of any type, other than those specified in paragraphs (a), (b), and (c) of this regulation, having a magazine of any kind, the magazine shall be rendered incapable of holding more than one shell by a method which will not allow of a change in the field.

SO BE WARNED. No further excuses will be accepted for illegal use of automatics and all guns will be confiscated.

CANADA GEESE

(A) Introduction

Yes, we are still losing ground on Canada Geese numbers, but mainly in the northern end of our district. The rest of the North Canterbury area shows a more modest increase. Although I am convinced there are far more people hunting geese now, than in the past, my hopes for hunter control of the total numbers appears to be a few years away yet. The N.C.A.S., with the help of the North Canterbury Game Shooters Club, have been working very hard to promote goose hunting. For instance, we have just finished (26/7/87) running a very successful field day, where advice and tips on hunting were given for both new and old hunters. The Society has, further, taken a lease on a Department of Conservation Lower Selwyn Hut, No. 25, for rent at Lake Ellesmere with first priority being given to goose hunters. The North Canterbury Game Shooters Club held a very successful shoot on Lake Ellesmere (29/3/87) when all goose hunters were encouraged to go out the same day so as to keep the birds moving; the top party for the day shot a 100 birds. These days of concentrated effort must be held more frequently if we wish to be left in charge of goose control in our area. Also, some very good ideas have come forward during the year for encouraging goose hunting, one of which was a prize for a goose that was banded on Lake Ellesmere and shot during the special season of the same year. We all agreed that this would increase hunting pressure and it sure did. The goose hunters went hunting through drawers, sheds etc, and came up with thousands of bands which threw the bureaucrats in Wellington into a red hot fever. Now that you have hunted out all the accumulated bands from around the house, please! get off your backsides and hunt down the bands that are still being worn.

(B) South Island Canada Goose Committee issues

Two meetings were held over the last 12 months in the Society's offices, 61 Bealey Avenue, Christchurch, the N.C.A.S. delegates being Mr P. L. Armitage and myself, both meetings being attended by representatives from most South Island Societies, our National Executive, Federated Farmers, and the Wildlife Service (now the Department of Conservation). While the meetings dealt generally with geese population numbers, controls, and crop and pasture predation, several items of special interest were covered as follows:—

(1) 15/8/86 Meeting — a motion was adopted to hold a special goose season in the month of April for a trial period of two seasons, in the high country of all Societies. For North Canterbury this has lead to the creation of a third Goose hunting season, as printed on the 1987/88 licence, to cover the 28/3/88 to 29/4/88 period, **ONLY** in the defined high country areas which, in general, are the high country lakes .These lake areas can develop a concentration of geese during autumn which can cause pasture damage. A public notice advertising this extension was placed in the daily newspapers on 7/3/87.

The second point was the offer by Wildlife Service to make their No. 25 hut at the lower Selwyn complex available to the N.C.A.S. for goose shooters. This offer lead to the N.C.A.S. and the Wildlife Service entering into a Tenancy (lease) agreement, signed on 25/3/87, to allow the Society to run the hut as an accommodation for Canada Geese shooting, game-bird hunting and fishing activity, in that order, with Government employees having free right of use when official work schemes are in progress, e.g. Canada Geese and Black swan banding, habitat improvements. If a clash of bookings occurs then those who book first will have priority. Councillors A. Cox, M. Emms and M. Robson have been elected as a sub-committee to look after the hut and its contents and to ensure the premises are clean and in good repair. A set of accommodation rules and agreements for Hut 25 were adopted and approved by the Society's Council (8/5/87), and are as follows:—

1. All bookings of accommodation and revenue to be administered by the N.C.A.S. office.
2. Fees:—
    - (a) All rental fees and bond to be paid in advance.
    - (b) Per person for booking of up to two days' duration, $10.00 per night.
    - (c) Per person for booking in excess duration of (b) above, $7.00 per night.
    - (d) Key deposit ($50.00). This bond will be returned in full on the return of keys to N.C.A.S. office and after inspection of the premises for cleanliness and damage.
3. The Secretary, N.C.A.S., will have the right to refuse accommodation if in his opinion he considers the proposed tenants are of an undesirable nature.
4. All bookings to be on a first-in first serve basis. (If the Hut has a double booking, this must have the approval of the person who booked it first, and he will be totally responsible for both parties).
5. The sub-committee Messrs Cox, Robson and Emms and N.C.A.S. Field Staff will have the right to inspect the property at any time.
6. There are to be no loaded firearms within the boundaries of the lower Selwyn Huts.
7. Toilet to be emptied into holding tanks on vacating the premises.

The agreement is for a period of three (3) years at an annual rental of 10 cents, with the Landlord (Government — D.O.C.) making a once-only grant of $2,000 to be expended by the tenant (N.C.A.S.) towards the initial maintenance and repair of the hut. Considerable repairs are required to the hut, especially to walls, doors, window frames, where rot has set in, and it is anticipated that voluntary working parties in spring-early summer will be formed to complete these repairs. The hut is now open for occupancy to those licenced sportsmen interested.

(2) 20/2/87 Meeting — a motion from this meeting was adopted to the effect that the South Island Goose Committee award a prize of a $500 gift voucher for the special season for a band recovered from Ellesmere banded birds. This motion was discussed at the March 1987 meeting of the Society's Game Committee where it was finally agreed to put up $100 for a prize on the special goose season for 1987 as a token of goodwill. After much debate and correspondence on this topic, between the Society and D.O.C., over a four month period, copies of the band information forms containing names, addresses and band numbers, were sent by D.O.C., Wellington to the Society, in July 1987. At the 5/8/87 Game Committee the band numbers were placed in a box and drawn by the President under the watchful eyes of Councillors. Pursuant to the Society's advertisement of 21/3/87, and to the Wildlife Act and Regulations, the lucky Canada Goose band drawn was band no. 19-65564 (Mr G. Rodgers, 35 Akaroa Street, Kaiapoi). Mr Rodgers was subsequently notified and paid, and a public notice inserted in the daily newspapers on 12/8/87.

Of interest to members also would be the local meeting, held on 29/7/87, between representatives of High Country Federated Farmers, Department of Conservation, and both North Canterbury and Ashburton Acclimatisation Societies, to discuss the local goose matters and problems. This annual meeting reviews and discusses any goose problem, controls needed, and population sizes prevailing in each region.

(C) Canada Goose research reports

A large percentage of time at the 20/7/87 South Island Goose Committee meeting was taken up by an analysis and discussion of two circulated reports from the Centre of Resource Management: "An assessment of the economic impact of Canada Goose grazing on Grasmere station using a farm management modelling technique", by P. S. Harris, K. J. Potts, E. J. Costello, 35 pages; and "The economics of Canada Goose management in New Zealand", by K. L. Leathers and E. J. Costello, 55 pages. A further report by J. J. Andrew, Senior Wildlife Officer, Christchurch, called "Discussion paper on Canada Geese BRANTA CANADENSIS with regard to policy, objectives and management in the South Island", 11 pages, was also tabled. Discussion occurred on all three reports at the meeting, with a certain amount of vigour and argument, relating to policies, best goose management techniques, how serious was the goose predation problem, and how can recreational hunting and farming both be satisfied. From this discussion a motion was adopted to form a sub-committee of four to prepare a goose strategy for submission to the August 1987 meeting of the South Island Committee (14/8/87), with each Society to send in its own policies and submissions. Consequently, the following N.C.A.S. Canada Goose policy was sent on 16/4/87):—

1. The N.C.A.S. adopts the South Island Canada Goose policy document of 1978, and its 1983 amendment.
2. The Society will continue its management policy on the Lake Grasmere Refuge of allowing up to 400 geese maximum before initiating culling procedures.
3. That the Society continue with its policy at the Lake Station area of culling with a helicopter and/or fixed wing aircraft, when the N.C.A.S. Council considers it appropriate.
4. The Society will endeavour to keep the population of geese on St. James Station under a 1,000 birds.
5. The Society is opposed to the culling of geese on Lake Ellesmere.
6. The Society will make every endeavour to promote the shooting of geese by licenced sportsmen, through education, seminars and organized shoots, with particular reference and emphasis being placed on Lake Ellesmere.
7. The Society will promote a lottery system for Canada Geese based on geese bands recovered anywhere in the South Island during the Special February-March goose season, on the condition that the birds shot are banded on Lake Ellesmere within the same year; the draw to be carried out by the Department of Conservation during April of that year.

Comment:

Councillors of the North Canterbury Acclimatisation Society made reference, during their March 1987 discussions on the goose policies, to Mr J. J. Andrew's discussion document as presented to the 20/2/87 South Island Canada Goose Committee. From this document they identified the status of the goose as being the 1st Schedule of the Wildlife Act 1953 and were totally opposed to any change from this schedule. Subsequent points of agreement included:- (a) the best way to control Lake Ellesmere numbers was to control and reduce the high country population; (b) an anomoly existed, in that the shooting pressure on Ellesmere could push the geese back into the high country, and vice versa; (c) that the birds on Ellesmere were not a problem — it was only when they reached the high country that the problem arose; (d) there was a great reluctance to place or derive a ceiling or figure on the geese numbers allowed on Ellesmere, since so many unknown control factors existed at present. The Society has written to the Department of Conservation requesting that they make a half or one hour firm dealing with Canada Goose hunting in N.Z., it being expressed that we see enough of overseas films but nothing pertaining to the local scene. Such a film would be of great value for educating local N.Z. hunters, as well as being used for possible tourist viewing.

This Society has discussed a wide range of topics while drafting its goose policies. Councillors reviewed the ideas of possibly banding **for age** as external ageing not possible (rejected as having little immediate value); of improving communications with high country farmers (which we have done for years); of being careful not to risk a South Island Council revolt against any rising goose control costs (i.e. claims); of what total population figure, if any, the Society was aiming for and could stand; on possible overseas advertising (U.S.A.) to encourage goose hunters; on some Wildlife Service personnel appearing to favour poisoning of geese as an option. North Canterbury appears to be the last Society which regards the goose as a hunting bird first and a problem second, which is what the Acclimatisation Society Movement is all about. For this reason, North Canterbury Councillors are totally against the commercialisation of Canada Geese at this stage. With an estimate of 2,500-3,000 geese shot on Ellesmere during the special February-March season, the Society is strongly of the view that we can manage the geese in our district perfectly adequately without outside interference."

(D) Goose control measures

A series of control measures occurred throughout the year being either drives organized by the Society, organized shooting parties arranged by the shooters themselves within the season, or Wildlife Service projects.

(1) During October 1986, several attempts by gameshooters were made to carry out goose shoots on the Eskhead Station, the first over 4-5 October being almost ruined by inclement weather, snow and rain. A second shoot over 27-28 October was successful, a total for the two attempts being 90 geese of which 8 had leg bands and 1 a red over white neck collar (an Ellesmere bird). Over 4-5 October as well occured a St. James shoot by a sporting party, lead by Mr L. Diggs, where a further 108 geese were shot.

(2) The Wildlife Service carried out goose control work in the Mt White area, 25-27 October, involving egg pricking where 193 nests were located containing 966 eggs of which 650 were destroyed. A group of shooters on a recreational hunt shot 30 geese over the same weekend, none of the birds being nesting geese. Egg pricking in the Mt White area is considered the only region that is cost effective in controlling geese. No Society field staff assisted in this project although F/O Novis was available if required.

(3) Four Canada Geese permits were issued to N.C.A.S. Councillors, by the N.C.A.S. Secretary pursuant to the Society's authority from the Wildlife Service, to carry out moult-flapper drives over late December 1986 and January 1987, in various high country areas. In the upper Rakaia River, on 3/1/87, a drive along the Harper and Wilberforce Rivers got 150 birds of which 9 were banded adults from a total of 25 adults, and the other 125 were flappers; no geese were seen on Lake Lilian this year. Mt White area (upper Waimakariri) was driven over 1-2 January 1987, with 1 adult and 7 flappers shot at Flora Tarn; 3 adults and 13 flappers on a small lake near Camp Stream; and 4 flappers on the lower Esk River; no geese were seen on the Waimakariri River, Lake Letitia or anywhere else. A drive on 28/12/86 occurred at Glynn Wye Station (upper Waiau River), with geese being driven by horsemen and men on foot down the Hope and Boyle Rivers, to 30-40 shooters at the junction of the Waiau; 300 geese were shot, most being flappers. No geese controls were needed at the Eskhead Station when contact was made on 5/1/87. Thus, in total, 478 geese were culled over a two week period. All Councillors present reported that fewer birds were present this year in all areas, compared to 1986.

(4) During March 1987, the North Canterbury Game Shooters Club called out all licenced shooters to occupy stands on 29/3/87 around Lake Ellesmere for a concerted effort to hunt the large concentration of geese present. Information from game shooters indicated a very successful day's shooting with about 100 shooters bagging an estimated 800 geese. The success of the day's shooting was attributed to the lack of boats and aircraft stirring up the geese, as occurred in two past attempts — this time the birds were allowed to trade freely helped by a fresh nor-wester. This shoot was followed by a sausage sizzle at the Lower Selwyn Huts from 3 p.m. onwards.

(5) A goose drive, using a fixed-wing aircraft and jet ranger helicopter, was conducted on 8/4/87 at the Lake Station, North Canterbury, with the expressed aim of reducing geese numbers. There was an estimated 627 geese present on 26/3/87, counted by F/O R. Novis and Councillor P. Barnes, but this number had reduced to 450 by 8/4/87. The aircraft plus 10 shooters culled 345 geese present on Lake Sheppard, with all birds either utilized by shooters, given to charity, or buried on the property; 14 leg bands were recovered. Cost of the two aircraft will be recovered back from the South Island Council.

(6) A goose shoot at Lake Grasmere took place on 11/4/87, being a combination sportsmen shoot with a fixed-wing aircraft to keep the birds down on the water within the vicinity of the shooters; 69 shooters attended, although fog delayed shooting until mid-day. From about 500 geese present, 268 were shot with 13 leg bands recovered; all birds were removed and utilized by shooters. Cost of the aircraft was recovered from the shooters themselves.

(7) A follow up to the 11/4/87 aircraft-sportsmen shoot, was a further one held on 7/6/87 at Lake Grasmere, this time 101 shooters attended with 252 geese shot from between 400-500 birds. Geese reported to be a little wary of the plane after last shoot in April; ground to aircraft communication lead to greater efficiency. Shooters camouflaged themselves better than in previous shoots; all birds were taken by shooters; 11 bands recovered; another successful operation.

(8) A further Lake Ellesmere shoot was organized for 16/8/87, with the North Canterbury Game Shooters Club again calling out all shooters to occupy stands so as to reduce the lake population. Such shoots are an important means of controlling geese numbers, and involving those hunters who do not normally shoot geese. An estimated 300 birds were shot by about 300 shooters, the reduced success rate being caused by fine, calm conditions leading to birds not trading, or flying too high.

(E) **Canada Geese banding programme**

This took place during January 1987, with the Wildlife Service concentrating in three areas:—

Lake Ellesmere (2-4 January): 1000 geese banded, plus attachment of white/red neck collars; 87 recaptures; 803 released.

Lake Pukaki (early January): 250 geese banded, plus attachment of yellow neck collars; 250 culled; 63 recaptures, 29 released.

Swan Lagoon, near Lake Ohau (mid-January): 400 geese banded, plus attachment of yellow/blue neck collars; 60 released; 64 recaptures; 312 culled.

The neck collars were for ease of identification in the field, and allows for data to be gathered on the spread of geese from specific areas through field observation, and shows how, where and when the geese move through the South Island. F/O Ross Novis assisted the Wildlife Service with this banding, including the use of the Society's 14ft aluminium dinghy and 25 h.p. outboard motor.

(F) **The annual aerial Canada Goose trend count** (adults only)

This was carried out for the N.C.A.S. by Mr R. T. Hutchinson, Department of Conservation, over 18-19 June 1987, being a total of a full day's flight time. Weather was variable, fine or showery, and the same aircraft route was taken as for 1986.

Lake Ellesmere	13,650
Heathcote Estuary	1,239
Lake Forsyth	580
Coopers Lagoon	0
Rakaia River — mouth to Acheron River	95
Waimakariri — mouth to Gorge	54
TOTAL — coastal N.C. wetlands	15,618
Lake Lyndon	36
Lake Pearson	0
Vagabond Inn	0
Lake Marymere	0
Lake Hawdon	0
Blackwater Lakes	11
Lake Letitia	0
Lake Grasmere	267
Lake Sarah	0
Poulter River	0
Lake Minchin	0
Cox River	6
Nigger Stream and tarns	0
Esk River	0
Lees Valley	0
TOTAL — upper catchments: Ashley, Waimakariri	320
South Branch — Hurunui	0
Lake Mason	0
Hurunui River	647
Lake Sumner	0
Lake Katrine	0
Lake Taylor	0
Lake Sheppard	0
Lake Taylor — Raupo tarn	315
TOTAL — upper catchments: Hurunui River/ Sumner Lakes	962
Lake Marion	51
Hope River	64
Boyle/Lewis River	93
Magdalene Valley	16
TOTAL — upper catchment: Hope/Boyle/Lewis	224
Waiau River	273
Mud Lake	985
Ada River and tarns	169

Lake Guyon	605
TOTAL — upper catchment of Waiau River	2032
Lake Tennyson	136
Fish Lake	0
Lake Sedgemere	0
Bowscale Tarns	21
Island Lake	0
Alma River-Crimea Creek to Red Gate Hut	465
Severn River and tarn	0
Acheron River	268
Guide River	0
Leaderdale River	111
TOTAL — upper catchments of Clarence/ Acheron Rivers	1001
Hanmer Plains	0
Amuri/Emu Plains	378
GRAND TOTAL	20,535

Comment:

(a) Totals showed 15,618 for coastal North Canterbury wetlands, of which 13,650 were on Lake Ellesmere an increase of 865 for the lake and 411 for the wetlands. The high country areas showed an increase from 2721 geese in 1986 to 4539 in 1987. Thus, the overall increase of 2387 birds between the years would appear to be mostly in the high country areas, especially the upper catchments of the rivers to the north of the district.

(b) The Marlborough areas of Fish Lake, Bowscale Tarns, Sedgemere Lake, Island Lake, and the Severn River, showed low numbers of geese compared to several years ago.

LAKE ELLESMERE CENSUS, 1986-1987

The Department of Conservation sent the Society a table of total bird counts for Lake Ellesmere, taken between February 1986 to April 1987, with February 1985 being included for comparison (Table 1). Each count was from shoreline-based personnel distributed around the lake, and conducted on the same day at the same time, to show monthly variations in species numbers. Note, that the count does not include any birds that may have resided in the centre of the lake, but only within visual binocular range of the shore. This table has been included for members interest and information.

BLACK SWAN

After the ten year battle to get Black Swan back on the licence, and with the aid of hindsight, events have proved that the Society was on the right track. The swan population reached a low point of around 3-4000, but since then it has continued to climb in spite of shooting pressure, and is now about 15,000 birds. The reason for this must surely be that the lake is producing more food. At this point in time we must be very careful to ensure that the swans do not over-graze and destroy the weedbeds, which will put us back to square one, a lake full of skinny and starving swans that are no use to anyone. Some hunters may feel that they are conserving the species by not shooting any; to me that would be a mistake. During July and August 1987 the swan become a nuisance around Ellesmere flying into power lines as they moved to surrounding pasture, from Kaituna to Southbridge. Shooters pressurized the Society to get the swan back on the licence — so get out there and hunt them!

Approval was given in August 1986 for field staff to carry out the annual Black swan nesting surveillance, being dependent on the success and degree of nesting to warrant the effort. The Society's caravan was stationed at the Birdling Tower location over September-October, with staff not permanently located but visiting the area regularly to check on poaching and nesting progress. Nesting started well, during August 1986, with Lake Ellesmere water levels fluctuating regularly, owing to flood waters from catchment rivers requiring the lake to be regularly opened. Miss T. Meis, who has been doing a research project on the Black swan during 1986/87, counted 894 nests on 8/9/86 at the main swan colony, containing a total of 4451 eggs some of which were hatching. A further progress report from Miss Meis, 26/11/86, showed a continuing successful breeding season to early December. At Birdlings, 229 study nests gave 241 nesting attempts with about 66% successful. The incubation period per clutch, starting with the penultimate egg, was around 42 days, an average of about 5 eggs per clutch, while the average hatch per clutch was about 3. Over 2,700 cygnets had been web-tagged at the colony to that date.

A Black swan banding and recapture programme, conducted over 4-5 January 1987 by the Department of Conservation (Wildlife Service) and assisted by F/O R. Novis and volunteers to help Miss Meis with her thesis, produced 2309 juvenile swan for leg banding of which 602 had web tags. A further round-up on 10/2/87 at the lake resulted in a further 211 being captured and banded. A final report on this excellent research should be forthcoming next year. No aerial counts by D.O.C. or Wildlife Service, were made this year.

WHITE SWAN

While no Wildlife Service aerial count on White swan was done this year, observations by field staff, and reference to Table 1, suggested numbers of birds were about the same as for 1986. A count on 8/1/87 by F/O Novis, during the shelduck flight, revealed a total of 30 adults and 4 cygnets on Lakes Ellesmere and Forsyth and Coopers Lagoon. There are still incidences of birds being 'accidently' shot, which must stop if we are to resurrect this species from the danger of extinction.

SHELDUCK

The annual aerial shelduck count for North Canterbury was carried out by F/O Ross Novis, on 8/1/87, taking approximately five hours in duration. Weather conditions were good for observations in most areas, and the same flight path followed as for previous years, with the addition of Lakes Ellesmere and Forsyth, and Coopers Lagoon. Duck numbers were as follows, with the geese numbers included, being for interest and information only.

Areas Visited	**Numbers of Shelduck**		**Numbers of Canada Geese**
	1986	**1987**	**1987**
Lake Marion	12	6	0
Lake Tennyson	12	35	0
Lake Guyon	6	90	28
Lake Sumner	0	12	0
Lake Taylor	0	0	0
Lake Sheppard & Lake Mary	350	365	20

Property	Date Banded	Date Released	Age at Release	Number Released	Comment
Turners, Southbridge	19/2/87	26/2/87	14 months	14	breeding adults
Turners, Southbridge	19/2/87	26/2/87	13 weeks	11	—
Turners, Southbridge	19/2/87	26/2/87	12 weeks	25	—
P. Smail, Hororata	17/3/87	23/3/87	12 weeks	25	—
P. Smail, Hororata	17/3/87	23/3/87	11 weeks	25	—
P. Smail, Hororata	17/3/87	23/3/87	12 weeks	10	—
Turners, Southbridge	2/4/87	9/4/87	12 weeks	10	—
D. Potts, Greenpark	13/4/87	20/4/87	12 weeks	13	—
D. Potts, Greenpark	21/4/87	27/4/87	12 weeks	16	5 killed by hawks within a few days
D. Potts, Greenpark	28/4/87	3/5/87	12 weeks	15	—
D. Potts, Greenpark	4/5/87	8/5/87	11 weeks	13	1 killed by cat
D. Potts, Greenpark	4/5/87	8/5/87	12 weeks	10	1 killed by hawk
D. Potts, Greenpark	5/6/87	14/6/87	10 weeks	14	2 killed by hawks
D. Potts, Greenpark	19/6/87	27/6/87	13 weeks	10	1 died in release pen

YARRS FLAT (VAN EEGHEN PROPERTY) WILDLIFE RESERVE DRAFT MANAGEMENT PLAN

The Wildlife Service on 19/2/87 informed the Society of the impending public release of the Yarr's Flat Wildlife Reserve Management Plan, and requested a meeting beforehand with Society Councillors, as day to day managers of protected and semi-protected wildlife, to discuss the first draft. This meeting took place on 16/3/87 where a four hour debate occurred, after which the Wildlife Service staff compiled a second draft taking into account some of the points made by the Society on the 16/3/87. An official public notice was published on 21/3/87, advertising the Management Plan's release pursuant to Section 14B of the Wildlife Act 1953.

At the Society's April 1987 Council meeting, it was agreed to publicly oppose the Management Plan on the grounds that the present plan would result in loss of shooting opportunities in an area that was originally purchased predominately (71%) by Acclimatisation Society finances for the express purpose of allowing game shooting. This purchase was initiated by the N.C.A.S. Council in 1977 and bought at auction by Mr G. Mugford, Society Councillor. Further, the Society opposed the tradeoffs proposed which would have restricted gamebird hunting in any other part of Lake Ellesmere — the D.M.P. anticipated the establishment of refuge status between Embankment and Jarvis Roads with the subsequent loss of 50-100 shooting positions, by allowing game shooting in a restricted part of Yarrs over May and June (duck season). A sub-committee comprising Messrs J. Mugford, R. Smith, A. Cox, D. Potts, and P. Armitage was formed to provide comments for Prof. W. Clark, to draft a submission in objection; closing date for submissions was 29/5/87. It was considered that the draft plan in its original form was too partisan in outlook and composition. Subsequently, a 14 page submission was drafted by Prof. Clark, circulated to Councillors and ratified by the full Council on 20/5/87. While I have not published our submission in full, because it is written with constant references to specific pages and contentious points, and thus would be meaningless to those who have not acquired a copy of the D.M.P., I can report that Councillors were well pleased with the submission and congratulated Prof. Clark on a superb effort.

In the meantime, a petition from members calling for a Special Meeting, was received on 4/5/87, to publicly discuss the Management Plan, this meeting taking place on 27/5/87 at the Winter Garden Hall. At this meeting some 155 members, Councillors and licence holders attended and debated the issue for 2.5 hours; 100 copies of our submission which was sent on 22/5/87 to the Department of Conservation (incorporated the Wildlife Service on 1/4/87) with copies to the Minister, Miss R. Richardson (local M.P.) and Mr G. Mugford (original purchaser, were made available at the Society meeting. Several resolutions were adopted, one supporting the N.C.A.S.'s efforts in protecting the region, and the other to investigate a legal question of whether the Government was acting as a Beneficial Trustee over the last 10 years for the Society.

At the time of writing, this topic of the D.M.P., and its debate and legal investigation, is still continuing, while the Minutes of the Special Meeting are printed in this Annual Report.

GENERAL ITEMS

(1) Two seminars were held in 1986 which were of interest to the Society. The first was one reporting on California Quail research, held on 17/10/86 at Wellington, which reviewed and examined the research data available to the present and related management applications, by those people actively involved with gathering information.

The second seminar was held at Lincoln College on 22/10/86, and heard and discussed the latest research being carried out by Mr Philippe Gerbeaux, Ph.D. student, in a paper entitled "The recession of the weed beds in Lake Ellesmere and the implication upon the value of the lake as a resource". I attended the meeting on the Society's behalf and found the research interesting, although a further funding of $13,650 was applied for to carry the research into 1988.

(2) The Christchurch Drainage Board had two islands in the Bromley Wildlife Refuge used by the Plains Pest Destruction Board for its 1080 rabbit control programme over 28-29 September 1986, after obtaining approval from the Wildlife Service. Diced carrots, dyed green, were used, after shooting, and gassing of burrows had failed to control the rabbit population. Rabbits had been defoliating the trees and shrubs planted on the islands, owing to a shortage of food. Society Field Officer R. Novis checked on 1/10/86 and failed to find any dead wildlife.

(3) Lincoln College informed the Society during 1987 that it planned a research project on nilgai antelope (native of India; already in the country), to evaluate it as a possible New Zealand farm animal for export. The species in appearance and behaviour, can be regarded as similar to a small cattle or large red deer; adults grow to 150-200kg, have a fecundity 2-3 times cattle and deer, and are efficient grass to meat converters. The Game Committee on 11/2/87 decided that the Society could not comment on the proposal, and certainly not oppose it since the antelope was already present, and thus no comment required.

(4) Four interesting articles were sent to the Society by our National Executive, during May 1987, to be used by staff and provide useful additions to the Society's library:—

- "A field technique for colour-dyeing nestling wading birds without capture".
- "Neckband retention in Canada Geese".
- "Reflecting tapes repell blackbirds from millet, sunflowers and sweetcorn".
- "Breeding data on the spur-wing plover in Southland, New Zealand"; this article being in response to suggestions that the plover be made a gamebird owing to its rapid increase in numbers and distribution — South Island Council's decision to this suggestion was an emphatic NO.

(5) A very successful game shooting field day was arranged by the North Canterbury Gameshooters Club for Sunday 26 July 1987, at the Belfast Gun Club, between 1-4 p.m. The theme was "An Introduction to Game Bird Shooting in

North Canterbury", and included advice on maimais; setting of decoys; effective distance of shotguns and the spread of shot over 20-60 metres; tuition for the younger inexperienced shooter, training of hunting dogs and retrieving; and camouflage instruction for hunter and stands. There were displays of gear; demonstrations on hand loading including the disadvantages of over-loading; videos on shooting of geese and ducks; demonstrations on trap shooting; stuffed bird display; and a static display by N.C.A.S. on various wildlife topics. Over 300 people attended during the afternoon; afternoon tea was provided (NO bar facilities); while public notices in the newspaper plus posters in strategic areas of the district, advertised the event. Plenty of advice and discussion eventuated, from and for both experienced and inexperienced shooters — one is never too old or experienced to learn. It is anticipated that other such field days will be run in 1988 and future years, to foster the responsible gameshooting attitude required to successfully hunt gamebirds and enjoy the sport of shotgun hunting.

(6) Lastly, notification is required altering the opening of the 1988 season date which may be confusing licence-holders. A South Island Council remit in March 1986 was adopted which has meant that the opening weekend for the game (duck) season, will now be the 1st Saturday in May. For the 1988 season this will be Saturday 7 May — please note!

INJURED AND ABANDONED BIRDS

Treatment of sick, injured and abandoned birds, continued at Greenpark, brought either into the office, often by emotional members of the public, or collected by staff from Christchurch and environs. Between September 1986 and August 1987 these totalled 211, of which 159 were ducklings either orphaned or injured; 14 injured ducks; 7 Black swan; 5 each of Little owl and Pukeko; 2 each of shags, storm petrel, white-faced heron, red-billed gull, black-billed gull and Harrier Hawk; 3 black-back gulls; and one (1) each of native pigeon, waxeye, Western Weka (juvenile), Canada goose, Kingfisher, and Broad-billed prion.

EXCESS BIRD RELEASES FROM GREENPARK, 1987

The birds released from the Greenpark Game farm in 1987 were as follows:—

(1) Ring necked pheasant: total 216 — 31 released in the Greenpark area; 19 sold to Granity and Otago breeders; and 166 released in North Canterbury being 6 at Brookside, 3 at Templeton, 24 each at Withells, McGregors and Highfield Fords, 8 at Cust, 15 at Waiau and 15 at Snowdon, 9 Springfield, 18 Hororata, 12 Broadfields, and 8 at Irwell. A further 36 pheasant eggs were given to breeders in Akaroa, Sefton, and in Christchurch.

(2) Red-legged Partridge: total 221 — as noted above, 60 were released on each of the Hororata and Southbridge (Turners) properties, and 91 at Greenpark (D. Potts); a further 10 were sold to Otago (8) and Ashburton (2) breeders.

(3) Grey Partridge: total of 17, all released at Brookside.

(4) Chukar Partridge: total 22 — 2 sold to Ashburton; 13 released in the Greenpark area; 4 given to University personnel; 3 released at Waipara.

(5) California Quail: total 16 — 10 released at Hororata, 6 sold to Granity and Otago.

(6) White Swan: total 3 — 1 sold to Balclutha, 2 to Seddon.

(7) Canada Geese: total 6 — 4 at Southbridge, 2 at Leeston.

(8) Grey and Mallard ducklings at the point of flying: total of 152; with 50 on the L.II River, 33 at Irwell, 26 at North Branch of Kaiapoi River; 43 in

the Greenpark area. A number of ducklings flew out of the Game Farm enclosure — these are not included.

The Society holds a breeding nucleus of game birds, 3-10 pairs of each, the progeny from which are sorted out, the strongest birds retained and the rest released. Broody bantam hens are used for incubation and fostering, as these hens make the best 'mothers'.

CONCLUSION

In conclusion I wish to thank the members of the Game Committee who have helped make my six years as Chairman enjoyable. To members of the North Canterbury Game Shooters Club, who have organized shoots, displays, and working bees, a special thanks. Finally, to the staff of the N.C.A.S., the Department of Conservation, and to those farmers who have shown some tolerance to game birds on their properties — thank you.

D. J. POTTS
Chairman

Waterfowl Count

The annual count of waterfowl was conducted on the 28th August 1987, with the results and the comparative figures for the past three years, being as follows:—

Location	Species	31/8/84	30/8/85	29/8/86	28/8/87
Lake Forsyth	Duck	143	361	100	218
	Black Swan	514	101	110	525
	Paradise Duck	6	6	9	2
	Canada Goose	408	362	522	1146
	White-faced Heron	11	4	10	4
	White Heron	3	2	1	—
	Spurwing Plover	21	2	19	22
	Shoveler Duck	—	13	—	5
	Black Shag	1	—	1	1
	Pukeko	7	2	—	9
	Little Shag	3	—	—	—
	White Swan	—	—	2	—
	South'n Crested Grebe	—	—	6	—
	Pied Shag	—	—	—	1
	Pied Stilt	—	—	—	14
Harts Creek	Duck	60	247	31	244
	Black Swan	90	39	31	112
	Canada Goose	47	56	576	426
	Pukeko	—	—	10	3
	White Swan	2	6	2	17
	Shoveler Duck	4	22	4	43
	Black Shag	—	17	—	—
	Pied Stilt	—	2	—	—
	Bittern	—	—	2	1
	Paradise Duck	—	1	1	12
	Domestic Goose	4	1	8	4
	Pied Shag	2	—	—	—
	California Quail	16	—	14	—
	White-faced Heron	—	2	—	2
	Harrier Hawk	—	4	—	2
	Grey Teal	—	—	2	68
Heathcote River	Duck	1750+	789	246	337
	Muscovy Duck	—	—	2	—
Avon River	Duck	5136	5025	1285	1342
	Welcome Swallow	(a)*	—	4	—
	Muscovy Duck	—	—	5	7
	Domestic Goose	—	—	2	—
	Black Shag	—	—	5	2
	Black Swan	—	—	—	1
	Pukeko	—	—	—	1
	White-faced Heron	—	—	—	1
Woodend Lagoon Refuge	Duck	250	300	150	200+
	Black Swan	65	28	9	2
	White Swan	—	2	—	—
	Shoveler Duck	145	120	350+	150+
	Grey Teal	18	48	47	50+
	N.Z. Scaup	25	—	44	20

Location	**Species**	**31/8/84**	**30/8/85**	**29/8/86**	**28/8/87**
	Paradise Duck	—	7	1	2
	Canada Goose	1	—	55	1
	Domestic Goose	4	1	2	1
	Pukeko	3	1	—	—
	Welcome Swallow	20	6	8	4
	Pied Stilt	2	—	—	2
	Spurwing Plover	—	2	—	—
	Australian Coot	—	—	3	—
	Harrier Hawk	—	—	3	2
	California Quail	—	—	—	20
Bromley Wildlife Refuge	Duck	622	1034	200+	800
	Black Swan	172	200	106	200
	Pukeko	131	178	110	85
	Canada Goose	1243	939	1500	500
	N.Z. Scaup	—	6	—	—
	Paradise Duck	4	12	—	5
	Shoveler Duck	6	62	60	—
	Domestic Goose	—	59	8	28
	Royal Spoonbill	—	11	6	9
	Grey Teal	—	—	3	—
	Harrier Hawk	–	—	3	—
	Black Shag	—	—	1	—
	White Heron	—	—	—	1
	Pied Stilt	—	—	—	2
	Pied Oyster Catcher	—	—	—	50
	Pied Shag	—	—	—	1
Lakes Victoria and Albert	Duck	64	88	61	323
	Welcome Swallow	(a)*	—	—	—
	Spotted Shag	1	—	—	—
	Little Shag	—	—	1	—
	Black Shag	—	—	—	3
SUMMARY	Duck	8025+	7844	2073+	3464+
	Black Swan	841	368	256	840
	White Swan	2	8	4	17
	Pukeko	141	181	120	98
	Paradise Duck	10	26	11	21
	White-faced Heron	11	6	10	7
	White Heron	3	2	1	1
	Canada Goose	1699	1357	2653	2073
	Spurwing Plover	21	4	19	22
	Little Shag	3	—	1	—
	Black Shag	1	17	7	6
	Shoveler Duck	155	217	414+	198+
	Pied Stilt	2	2	—	18
	Bittern	—	—	2	1
	Muscovy Duck	—	—	7	7
	Grey Teal	18	48	52	118+
	N.Z. Scaup	25	6	44	20
	Welcome Swallow	20(a)*	6	12	4
	Pied Shag	2	—	—	2
	Domestic Goose	8	61	20	33
	Pied Oystercatcher	—	—	—	50

Location	**Species**	**31/8/84**	**30/8/85**	**29/8/86**	**28/8/87**
	California Quail	16	—	14	20
	Spotted Shag	1	—	—	—
	Royal Spoonbill	—	11	6	9
	Harrier Hawk	—	4	6	4
	South'n Crested Grebe	—	—	6	—
	Australian Coot	—	—	3	—
		11004+	10168	5741 +	7033 +

Weather Conditions:—

Lake Forsyth: fine and clear; lake level normal.

Woodend Wildlife Lagoon: overcast, poor light, water level average height.

Harts Creek: misty with drizzle; lake three-quarters full.

Bromley Wildlife Reserve: overcast.

Avon and Heathcote Rivers: overcast; tide half way out.

Notes:—

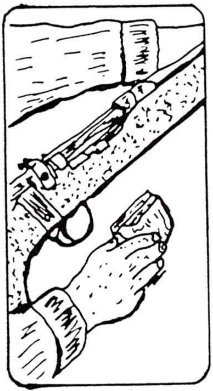
(a)* Along the Avon River, and around Lakes Victoria and Albert, Welcome Swallows were frequently sighted in numbers, in built-up areas. Nearly every bridge across the Avon River, had Welcome Swallows.

(b) At the Bromley Wildlife Refuge, F/O R. Novis reported seeing about 1200 Canada Geese flying off the pond and over the estuary, about 1 hour before F/O B. Ross did the official count; thus geese numbers could be about 1700.

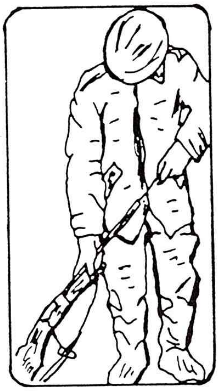
(c) Woodend Lagoon described as being deserted in comparison with other years.

FIREARMS SAFETY

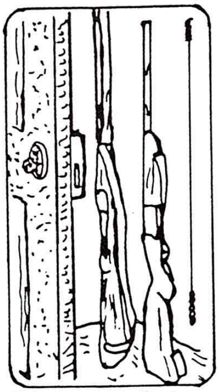
1. **When you have finished using a firearm, make these three rules a habit.**



Unload



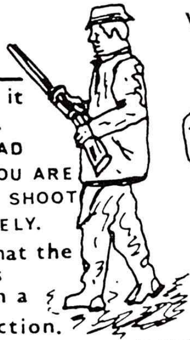
Clean



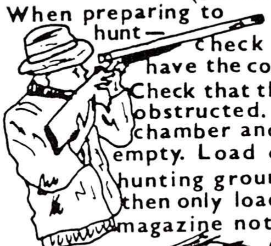
Store safely
(gun and ammunition separately)

NEVER POINT
ANY FIREARM
LOADED
OR UNLOADED
AT ANYTHING
UNLESS YOU
INTEND
TO SHOOT

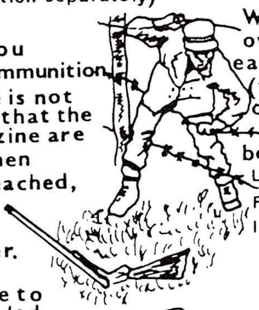
2\.



When carrying a firearm— make sure it is unload. NEVER LOAD UNLESS YOU ARE GOING TO SHOOT IMMEDIATELY. Ensure that the muzzle is pointed in a safe direction. NEVER DEPEND ON THE SAFETY CATCH.



When preparing to hunt— check that you have the correct ammunition. Check that the bore is not obstructed. Check that the chamber and magazine are empty. Load only when hunting ground is reached, then only load magazine not the chamber.



When getting over a fence— ease the firearm (with the action open) carefully under the bottom wire. LAY YOUR GUN FLAT WHEN NOT IN USE.

It is an offence to carry any loaded firearm in any vehicle. It is therefore an offence to shoot from any vehicle at anytime.

When handing a firearm to a companion CHECK that it is unloaded. EVEN THEN hand it in such a way that the muzzle is pointing in a safe direction.

3\.
DO NOT FIRE AT SHAPE OR COLOUR OR MOVEMENT.

FIRING AT AN UNIDENTIFIED TARGET IS THE HALLMARK OF INEXPERIENCE.

REMEMEBER : Regardless of any "safety devices" the only safe firearm is an empty one with the action open.

FINANCE REPORT

(W. E. HANNAH)

LICENCE SALES

Fish — A total of 1719 fewer licences were sold for the 1986-87 season. The previous season 15,852 were sold compared with 14,133 for the last season. This represents a reduction of 10.8 per cent. The above figures are for all categories. A total of 268 free junior licences were issued.

Game — 45 more adult and 18 more junior licences were sold compared with the 1985-86 season.

Note that the accounts do not show the amounts of G.S.T. included in the fee paid by licence buyers and subsequently paid by the Society to the Inland Revenue Department. G.S.T. totalled $29,771.20. The increase in Fisheries net income in spite of reduced sales is due to increased licence fees.

ASSETS PURCHASES

Major items purchased during the year included office photocopier, franking machine, field officer's vehicle, nets, and two motors. Provision for these items had been made in the Assets Replacement Account. The amount of nine thousand dollars plus in the accounts shown as profit on disposal of assets represents the trade-in value of several assets which were replaced in accordance with the Society's policy.

SUNDRY INCOME:

A substantial increase in interest received reflects higher interest rates, higher funds on deposit, and good management of the funds by the Society's Secretary.

NORTH CANTERBURY ACCLIMATISATION SOCIETY
AUDITORS' REPORT
FOR THE YEAR ENDED 31 AUGUST 1987

The Members
NORTH CANTERBURY ACCLIMATISATION SOCIETY

We have obtained all the information and explanations that we have required. In our opinion proper accounting records have been kept by the Society so far as appears from our examination of those records.

In our opinion, according to the best of our information and the explanations given to us and as shown by the said records, the financial statements on pages 142 to 150 are properly drawn up so as to give, under the historical cost convention, varied by the revaluation of Land and Buildings, a true and fair view of the state of affairs and the changes in financial position of the Society as at 31 August 1987. and the results of its business for the year ended on that date.

Christchurch
NEW ZEALAND
14 OCTOBER 1987

ARTHUR YOUNG
CHARTERED ACCOUNTANTS

NORTH CANTERBURY ACCLIMATISATION SOCIETY

BALANCE SHEET

AS AT 31 AUGUST 1987

	Note	1987	1986
Current Accounts			
Cash		75	75
Australia and New Zealand Banking Group —			
Current Account		24,236	25,980
Term Deposit	4	47,000	30,000
Accounts Receivable		19,736	10,443
		91,047	66,498
Investments			
5.5% NZ Government Stock—due 15.8.87		—	1,500
Australian and New Zealand Banking Group —			
Asset Replacement Fund	6	137,386	115,206
Building Maintenance Fund	7	10,169	7,169
Reserves Trust Fund	8	3,800	2,000
		151,355	125,875
Fixed Assets	2	231,294	230,370
Total Assets		$473,696	$422,743
Current Liabilities			
Accounts Payable	9	135,315	122,723
Total Current Liabilities		135,315	122,723
Accumulated Reserves			
Ordinary Fund Reserve			
Excess of Income over Expenditure for year		20,654	(11,991)
Less Transfer to Asset Replacement Reserve	5	(4,473)	3,381
Surplus for Year after Transfer from Asset Replacement Reserve		16,181	(8,610)
Balance 1 September 1986		13,019	21,629
Balance 31 August 1987		29,200	13,019
Property Revaluation Reserve	3	171,795	171,795
Asset Replacement Reserve	5	137,386	115,206
Total Accumulated Reserves		338,381	300,020
Total Funds Employed		$473,696	$422,743

On behalf of the Council

R. F. KNOWLES, President

B. F. WEBB, Secretary

The notes on pages 146 to 149 should be read in conjunction with these accounts.

NORTH CANTERBURY ACCLIMATISATION SOCIETY
INCOME AND EXPENDITURE ACCOUNT — GENERAL
FOR THE YEAR ENDED 31 AUGUST 1987

	Note	1987	1986
Income			
Fisheries — Net Income		172,879	163,966
Wildlife — Net Income		3,099	2,187
Profit on Disposal of Assets		9,869	4,500
Sundry Income	10	12,487	5,366
Rent Received on Crown Land		1,800	1,800
		200,134	177,819
Expenditure			
Ranging and Conservation			
Wages		14,779	19,424
Vehicle Expenses		6,989	10,924
		21,768	30,348
Administration			
Accounting		1,950	2,200
Advertising		3,084	3,681
Audit Fee		1,000	1,000
Doubtful Debts		2,121	8,606
Depreciation (Excluding Vehicles)	2	13,839	12,398
Field Staff Expenses & Allowances		1,238	1,307
General Expenses		8,753	4,365
Insurances and ACC Levy		9,028	5,154
Legal Expenses		1,455	3,047
Office Premises Expenses		5,183	4,793
Printing — General		14,133	13,956
Salaries and Superannuation		66,792	67,748
Telephone, Tolls and Postage		12,814	8,569
Travelling Expenses		6,467	8,994
Vehicle Expenses and Registration		9,855	13,644
		157,712	159,462
Total Expenditure		179,480	189,810
Excess of Income over Expenditure for Year		$20,654	$(11,991)

The notes on pages 146 to 149 should be read in conjunction with these accounts.

NORTH CANTERBURY ACCLIMATISATION SOCIETY
INCOME AND EXPENDITURE ACCOUNT — FISHERIES
FOR THE YEAR ENDED 31 AUGUST 1987

		1987	1986
Income from Licences			
Senior	10,438 @ $32.00	334,016	298,485
Junior	2,115 @ $ 6.50	13,748	14,481
Weekly	723 @ $16.00	11,568	13,167
Daily	857 @ $ 6.50	5,570	5,256
Replacements	49 @ $ 0.91	45	79
		364,947	331,468

During the year 268 free licences were issued to Juniors under 10 years old.

	1987	1986
Direct Expenses		
MAF Research Levy	45,335	39,732
S.I. Council Fish Management Levy	62,666	66,511
Licence Agents' Commissions—(2.25% of Agents Sales)	7,850	7,399
Printing of Licences	4,475	3,812
Refunds	—	27
	120,326	117,481
Net Income from Licence Sales	244,621	213,987
Sale of Fishing Nets and Lines	45	20
Total Fisheries Income	244,666	214,007
Field Work		
General	11,704	8,583
Wages	36,462	25,331
Vehicle Expenses	14,583	12,879
	62,749	46,793
Fish Salvage and Liberation		
Wages	6,149	1,902
Vehicle Expenses	2,889	1,346
	9,038	3,248
Total Operations Expenditure	71,787	50,041
Net Income — Fisheries	$172,879	$163,966

NORTH CANTERBURY ACCLIMATISATION SOCIETY
INCOME AND EXPENDITURE ACCOUNT — WILDLIFE
FOR THE YEAR ENDED 31 AUGUST 1987

		1987	1986
Income from Licences			
Adult	2,102 @ $30.91	64,971	57,596
Junior	113 @ $15.45	1,746	1,330
Replacements	5 @ $ 0.91	5	9
Previous Year Licences		309	1,509
		67,031	60,444
Direct Expenses			
S.I. Council Game Management Levy		13,034	9,474
Licence Agents' Commission—2.25%		1,317	1,328
Printing of Licences		1,149	1,406
		15,500	12,208
Net Income from Licence Sales		51,531	48,236
Sundry Income		932	200
Sale of Birds		—	535
Total Wildlife Income		52,463	48,971
Field Work			
General		3,282	662
Wages		8,306	7,209
Vehicle Expenses		4,774	4,805
		16,362	12,676
Game Farm			
General		7,110	6,466
Wages		23,733	24,230
Vehicle Expenses		2,159	3,412
		33,002	34,108
Total Operations Expenditure		49,364	46,784
Net Income — Wildlife		$3,099	$2,187

NORTH CANTERBURY ACCLIMATISATION SOCIETY
NOTES TO THE ACCOUNTS
FOR THE YEAR ENDED 31 AUGUST 1987

1 STATEMENT OF ACCOUNTING POLICIES

GENERAL ACCOUNTING PRINCIPLES

The general accounting principles recognised as appropriate for the measurement and reporting of earnings and financial position on an historical cost basis have been followed with the exception that land and buildings have been revalued. Accrual accounting has been used to match revenue and expenses. Reliance is placed on the fact that the Society is a going concern.

PARTICULAR ACCOUNTING POLICIES

The following particular accounting policies which materially affect the measurement of earnings and financial position have been applied:

: Accounts receivable are stated at their estimated realisable value.

: Investments are valued at cost.

: Land is shown at the latest Government valuation. Buildings are shown at 80% of the latest Government valuation less aggregate depreciation. Plant and equipment and motor vehicles are shown at cost less aggregate depreciation.

: Depreciation has been written off plant and equipment and motor vehicles on a straight line method based on the economic lives of the assets which vary between two and ten years. Buildings are also being depreciated on the straight line method to write them off in 25 years based on the revalued figure.

: Due to the high cost of replacing fixed assets, an allocation is made each year to an Asset Replacement Reserve of an amount estimated to be sufficient to finance their replacement. The allocation is shown in the Accumulated Funds section of the balance sheet. An amount, equivalent to the Reserve established, is held in a separate bank account. This reserve does not cover the cost of replacing buildings. Interest received on Asset Replacement Fund investments are added to the fund and have not been included in the income and expenditure account for the year.

: The method of accounting for GST is to state both income and expenditure exclusive of GST.

CHANGES IN ACCOUNTING POLICIES

There have been no material changes in accounting policies since the previous annual financial statements.

NORTH CANTERBURY ACCLIMATISATION SOCIETY
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 AUGUST 1987

2 FIXED ASSETS

	Cost or Revaln	1987 Depn.	Agg. Depn.	1987 B.V.	1986 B.V.
At Valuation					
Land	94,000	—	—	94,000	94,000
Buildings	86,834	4,999	18,345	68,489	73,488
At Cost					
Plant and Equipment	55,135	7,288	37,542	17,593	21,940
Motor Vehicles	100,098	19,164	57,788	42,310	36,956
Office Equipment	14,270	1,552	5,368	8,902	3,986
	350,337	33,003	119,043	231,294	230,370
Claimed in Vehicle Expenses		19,164			
Per Income and Expenditure Account		$13,839			

3 REVALUATION RESERVE

	Government Valuation	Revaluation Reserve	Historical Cost
Land			
—Bealey Avenue (GV 1.4.84)	30,700	23,437	7,263
—Greenpark (GV 1.7.83)	63,300	59,639	3,661
	94,000	83,076	10,924
Buildings			
—Bealey Avenue (GV 1.4.84)	44,300	31,886	11,067
—Greenpark (GV 1.7.83)	63,700	56,833	4,608
	108,000	88,719	15,675
	$202,000	$171,795	$26,599

4 TERM DEPOSIT/LEVY FUND

	1987	1986
ANZ Banking Group Limited		
15.50% — due 10 December 1986	—	30,000
18.50% — due 27 September 1987	20,000	—
20.00% — due 2 September 1987	27,000	—
	$47,000	$30,000

NORTH CANTERBURY ACCLIMATISATION SOCIETY
NOTES TO THE ACCOUNTS
FOR THE YEAR ENDED 31 AUGUST 1987

	1987	1986
5 ASSET REPLACEMENT RESERVE		
Balance 1 September 1986	115,206	102,725
This Year's Provision	33,521	14,609
Deduct: Disposals this Year	(29,048)	(17,990)
Transfer from Ordinary Funds	4,473	(3,381)
	119,679	99,344
Add: Interest Received	17,707	15,862
Balance 31 August 1987	$137,386	$115,206
6 ASSET REPLACEMENT FUND		
ANZ Banking Group Limited		
—14.50% — due 10 December 1986		30,000
—15.25% — due 1 March 1987		471
—19.00% — due 13 November 1986		50,475
—15.00% — due 14 January 1987		22,000
—10.00% — due 1 March 1987		12,260
Current Account	21,655	—
—20.00% — due 2 September 1987	33,000	—
—17.50% — due 1 January 1988	12,731	—
—18.00% — due 24 December 1987	25,000	—
—18.00% — due 18 January 1988	45,000	—
	$137,386	$115,206
7 BUILDING MAINTENANCE FUND		
ANZ Banking Group Limited		
—15.50% — due 16 February 1987	—	7,169
—18.50% — due 16 September 1987	10,169	—
	$10,169	$7,169
8 RESERVES TRUST FUND		
Balance 1 September 1986	2,000	—
Add: Rent Received from Van Eeghens Hut	1,800	1,800
Transferred from Current A/c	—	200
Balance 31 August 1987	$3,800	$2,000

NORTH CANTERBURY ACCLIMATISATION SOCIETY
NOTES TO THE ACCOUNTS
FOR THE YEAR ENDED 31 AUGUST 1987

9 ACCOUNTS PAYABLE

	1987	1986
Levies	121,035	115,718
Sundry Creditors	6,422	4,205
Audit and Accounting Fee Accruals	2,800	2,800
GST Payable	3,058	—
Selwyn Hut Maintenance Grant	2,000	—
	$135,315	$122,723

10 SUNDRY INCOME

	1987	1986
Interest Received	11,132	3,644
Fines	394	696
Donations	436	579
Sundry Refunds Received	525	447
	$12,487	$5,366

NORTH CANTERBURY ACCLIMATISATION SOCIETY
SOURCE AND APPLICATION OF FUNDS
FOR THE YEAR ENDED 31 AUGUST 1987

Source of Funds		
Net Profit from Operations		20,654
Add Back Non-Cash Item — Depreciation		33,003
Asset Replacement Fund Interest Received		17,707
Net Cash Available from Operations		71,364
Other Sources		
Decrease in Government Stock		1,500
Increase in Accounts Payable		12,592
Total Sources of Funds		85,456
These Funds were Applied to:		
Increase in Accounts Receivable	9,293	
Purchase of Fixed Assets	33,927	
Funds Applied		43,220
Leaving Surplus Funds Represented by an Increase in the ANZ Bank Current and Term Deposit Accounts		$42,236

NORTH CANTERBURY ACCLIMATISATION SOCIETY
COMPARATIVE STATEMENT OF FISHING AND GAME INCOME AND EXPENDITURE
FOR THE YEAR ENDED 31 AUGUST 1987

	Game	Fish	Total
Expenditure			
Fisheries Expenditure	—	71,787	71,787
Wildlife Expenditure	49,364	—	49,364
Ranging and Conservation	3,374	18,394	21,768
Administration and General	24,445	133,267	157,712
Excess Income over Expenditure	—	43,450	22,654
	77,183	266,898	323,285
Income			
Fisheries	—	244,666	244,666
Wildlife	52,463	—	52,463
Interest	1,670	9,462	11,132
Sundry Revenue	2,254	12,770	15,024
Excess Expenditure over Income	20,796	—	—
	77,183	266,898	323,285

N.B.: The computation for items other than direct income and expenditure is based on proportion of gross licence sales.

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